Alpha
Consulting Engineers Pte Ltd

PROJECT QUALITY PLAN

PROPOSED UPGRADING OF EXISTING MAYFLOWER PRIMARY SCHOOL

For

MINISTRY OF EDUCATION

Copy No.	1

Prepared By: Yip Yoke Fun/Thin Thin

Authorised By: Loh Fook Yuen

Date: 4 December 2023

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SECTION 1

QUALITY PLAN CONTROL AND DISTRIBUTION

1.1 List of Copy Holders

Copy No.	Copy Holder	Date of Issue
1	6223–PQP File	4 December 2023

1.2 Revision Record

Revision	Date of Issue	Section Reference	Page(s)	Remarks
0	25 July 2016	1 to 11	31	
1	29 April 2019	1 to 11	32	+ 11 pgs (Section 8.4 – List of Pre-consultation and Waiver)
2	20 November 2019	1 to 11	30	+ 6 pgs (Section 4.1 – Overall Programme) + 11 pgs (Section 8.4 – List of Pre-consultation and Waiver)
3	4 January 2021	1 to 11	32	+ 9 pgs (Section 4.1 - Overall Programme) + 11 pgs (Section 8.4 – List of Pre-consultation and Waiver)
4	4 December 2023	1 to 11	31	+ 9 pgs (Section 4.1 - Overall Programme) + 11 pgs (Section 8.4 – List of Pre-consultation and Waiver)

SECTION 2

PROJECT INFORMATION

2.1 Project Description

Type of Development	Upgrading of School

Statistics of Development	
Site Area, m²	19,143.36
Nett Floor Area, m²	-
Gross Floor Area, m²	13,155
Covered Carpark, m²	NA
No. of Covered Carpark Lots	NA
No. of Apartments/Houses	NA
No. of Beds (for Hospitals)	NA
No. of Guestroom (for Hotels)	NA
No. of Blocks / No. of Storeys	NA
Green Mark Category	Certified
No. of Phases	-

2.2 Project Cost

M&E Services Cost Plan (S$ x 1M)										
Services	EI	ACVI	LEI	FFAI	PSI	SPFI				
Estimate	2.0	1.2	0.38	1.1	0.9	-				
Awarded	1.8	0.64	0.22	0.53	1.0	-				

Total Project Construction Cost (S$ x1M)			
	Site Clearance	Piling Works	Main Contract
Estimate			35
Awarded			33

Site Clearance shall include earth work, soil improvement, service diversion and termination.

2.3 Scope of Works

2.3.1 Scope of Consultancy Services

Conceptual/Schematic Design	✓
Detailed Design	✓
Tender Documentation	✓
Tender Evaluation	✓
Contract Supervision	✓
M&E Costing	✓
Submissions to Authority	✓

(✓*where applicable*)

2.3.2 Scope of M&E Services

ELECTRICAL	✓	AIR CONDITIONING	✓	SPRINKLER		SANITARY	✓	SWIMMING POOL	
LIFT	✓	MECHANICAL VENTILATION	✓	FIRE ALARM	✓	COLD WATER	✓	STEAM BOILER	
ESCALATOR		MECHANICAL SMOKE EXTRACT		HOSEREEL	✓	HOT WATER	✓	FUEL STORAGE	
PABX		COMPUTER A/C		WET RISER		TOWN GAS			
SECURITY	✓	BST CARPARK EXH		DRY RISER	✓	LPG GAS			
TELELIFT		HEATING				MEDICAL GAS			
DATA COMM.	✓								
FLUSHFLOOR TRUNKING	✓								

(✓*where applicable*)

2.3.3 Submission to Relevant Authorities by Others

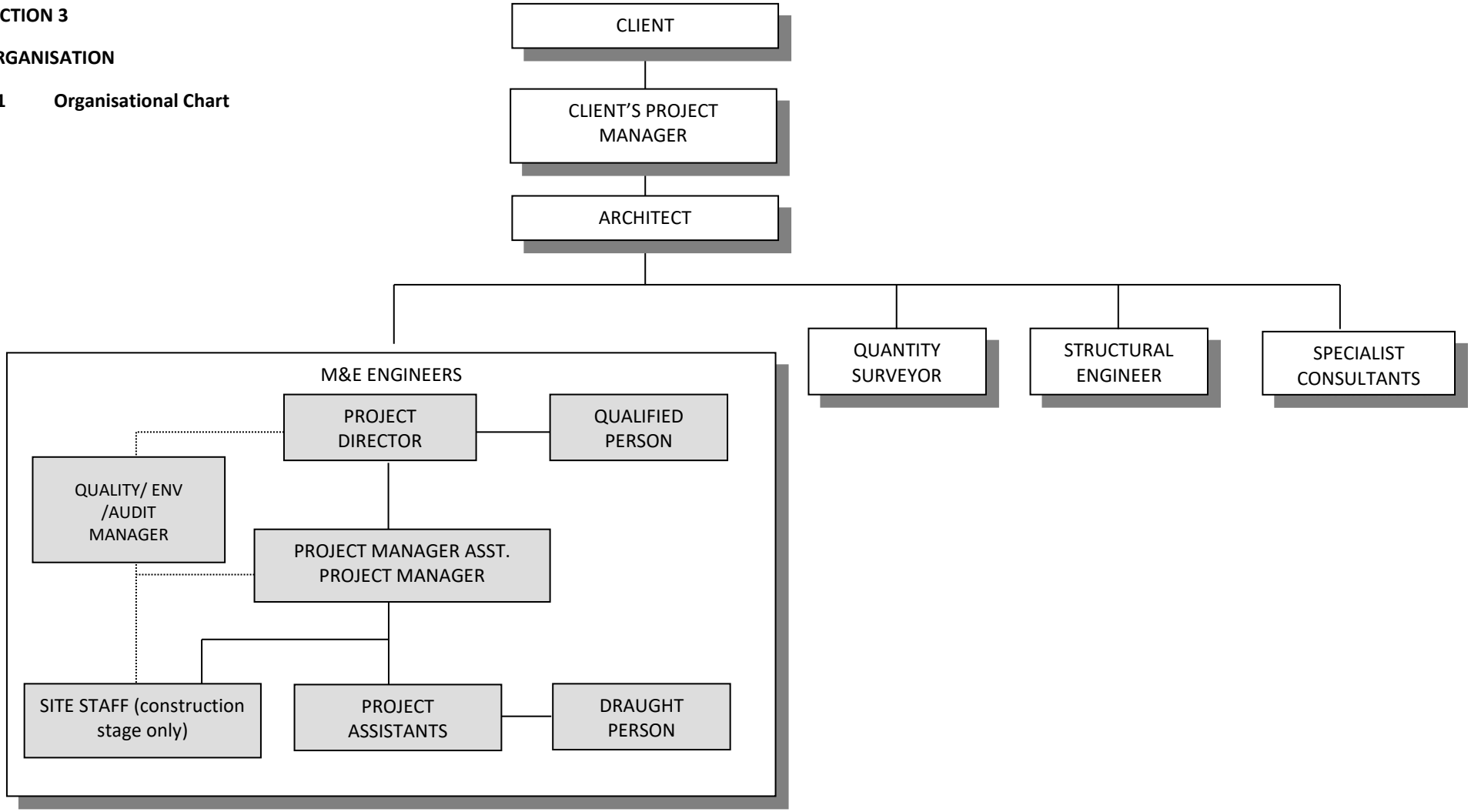
EJECTOR & DIVERTER		SUMP PUMP		FUEL OIL TANK		LIFT	√	PRESSURE VESSEL		HOISTS		FOAM	

(✓*where applicable*)

SECTION 3

ORGANISATION

3.1 Organisational Chart



SECTION 3

ORGANISATION

3.2 ACEPL's Project Team Member

TITLE		NAME
Project Director		Loh Fook Yuen (LFY)
Qualified Person	Mechanical	Choong Choon Guan (CCG)
	Electrical	Loh Fook Yuen (LFY)
Project Manager		Yip Yoke Fun (YYF)
Assistant Project Manager		Thin Thin (TTT)
Project Assistant (Mech)		-
Project Assistant (Elect)		-
Draughtsperson		Common Pool
Resident Engineer (M&E)		-
Assistant Resident Engineer (M&E)		-
Clerk-of-Work (M&E)		-

3.3 Client/Client's Representatives

Client: (Developer)	Ministry of Education	Client: (Project Manager)	Surbana International Consultants Pte Ltd
Address:	285 Ghim Moh Road Block C Level 3 Singapore 279622	Address:	168 Jalan Bukit Merah #01-01 Connection One Singapore 150168
Tel:	6597 6545	Tel:	6248 1288
Fax:	6776 3850	Fax:	6273 9090

Client's Representatives:

Name of Company	Contact Person	Contact
Ministry of Education	Name: Ms Kok Shu Jing Position: Senior Manager (Infrastructure & Facility Services Division)	Tel: 6597 6583 Fax: 6776 3850 Handphone: – Email: kok_shu_jing@moe.gov.sg
Surbana International Consultants Pte Ltd	Name: Ms Chester Low Jun He Position: Senior Executive Project Manager	Tel: 6248 1844 Fax: 6248 1294 Handphone: 9845 9362 Email: chester.lowjhsj@surbanajurong.com
	Name: Position:	Tel: Fax: Handphone: Email:
	Name: Position:	Tel: Fax: Handphone: Email:
	Name: Position:	Tel: Fax: Handphone: Email:

3.4 **Other Consultants** (Local)

Function / Name of Company	Contact Person	Contact
Architect LAUD Architects Pte Ltd	Name: Mr Melvin Tan H J Position: Director	Tel: 6259 2122 Fax: 6259 1151 Handphone: 9690 7110 Email: melvin@laudarchitects.com
Quantity Surveyor Langdon & Seah Singapore Pte Ltd	Name: Mr Sunny Tan Hock Meng Position: Director	Tel: 6239 8258 Fax: 6224 7089 Handphone: 9674 1858 Email: sunnytan@sg.langdonseah.com
Structural Engineer Ecas-Ej Consultants Pte Ltd	Name: Mr Titus Tay Thiam Yeow Position: Director	Tel: 6533 6788 Fax: 6536 0229 Handphone: 9788 6264 Email: titus_tay@ecasej.com.sg
Interior Designer	Name: Position:	Tel: Fax: Handphone: Email:
Lighting Consultant	Name: Position:	Tel: Fax: Handphone: Email:
Acoustic Consultant	Name: Position:	Tel: Fax: Handphone: Email:
_____	Name: Position:	Tel: Fax: Handphone: Email:
_____	Name: Position:	Tel: Fax: Handphone: Email:

3.4 Other Consultants (Overseas) – **NOT APPLICABLE**

Function / Name of Company	Contact Person	Contact
Architect	Name: Position:	Tel: Fax: Handphone: Email:
M&E Consultant	Name: Position:	Tel: Fax: Handphone: Email:
Quantity Surveyor	Name: Position:	Tel: Fax: Handphone: Email:
Structural Engineer	Name: Position:	Tel: Fax: Handphone: Email:
Interior Designer	Name: Position:	Tel: Fax: Handphone: Email:
Lighting Consultant	Name: Position:	Tel: Fax: Handphone: Email:
Acoustic Consultant	Name: Position:	Tel: Fax: Handphone: Email:
_____	Name: Position:	Tel: Fax: Handphone: Email:

3.5 Contractors/Sub-Contractors

Function / Name of Company	Contract *	Contact Person	Contact
Main Contractor Kwan Yong Construction Pte Ltd	DSC	Name: Mr Loh Chuan Hoe, Adrian Position: Project Manager	Tel: 6898 2323 Fax: 6861 1900 Handphone: 8726 2338 Email: adrian.loh@kwanyong.com.sg
Air Conditioning & Ventilation Installation Sub-Contractor Expedite Air Conditioning & Electrical Pte Ltd	DSC	Name: Mr Aden Lau Position: Project Engineer	Tel: 6250 2658 Fax: 6253 2631 Handphone: 9295 8182 Email: aden@expedite.com.sg
Plumbing & Sanitary Installation Sub-Contractor ASK M&E Pte Ltd	DSC	Name: Mr A Pari Position: Project Manager	Tel: 6296 3946 Fax: 6296 7520 Handphone: 8127 0449 Email: pari@ask.com.sg
Electrical Installation Sub-Contractor HEC Electrical & Construction Pte Ltd	DSC	Name: Mr Chong Position: Project Manager	Tel: 6741 1066 Fax: 6742 8066 Handphone: 9062 3982 Email: chong@hec.com.sg
Lift Installation Sub-Contractor Otis Elevator Company (Singapore) Pte Ltd	DSC	Name: Mr Vincent Leow Position: Project Manager	Tel: 6298 7733 Fax:6297 2646 Handphone: 9652 5960 Email: Vincent.Leow@otis.com
Fire Fighting & Alarm Installation Sub-Contractor HEC Electrical & Construction Pte Ltd	DSC	Name: Mr Chong Position: Project Manager	Tel: 6741 1066 Fax: 6742 8066 Handphone: 9062 3982 Email: chong@hec.com.sg
Swimming Pool Filtration Plant Installation Sub-Contractor		Name: Position:	Tel: Fax: Handphone: Email:
Carpark System Installation Sub-Contractor		Name: Position:	Tel: Fax: Handphone: Email:

** Type of Contract*
- *NSC (Nominated Sub-Contract)*
- *DSC (Domesticated Sub-Contract)*
- *DC (Direct Contract)*
- *NS (Nominated Supplier)*

3.6 Authorities

Authorities/Department	Contact Person	Tel/Fax Nos./E-mail
SP PowerGrid:		
(a) Sub-Station		
(b) Diversion		
SP Services:		
(a) Customer Supply		
(b) Installation		
(c) Meter Section		
(d) Road Lighting		
TFCC:		
(a) SCV		
(b) SingTel		
(c) IDA		
BCA:		
(a) Building Plan		
(b) Green Mark		
FSSD:		
(a) Building Plan		
(b) M&E Plan		
PUB (Water Supply) Network Dept:		
(a) Water Conservation	-	
(b) Plumbing Plan	Mr. Ow Zhao Hui	6885 2551/9380 2963/ ow_zhao_hui@pub.gov.sg
(c) Diversion	-	
(d) NEWater	-	
PUB Water Reclamation (Network) Dept:		
(a) Building Plan/CBPU	Ms Nur Sakinah	6571 4080/Nur_Sakinah_Azman@pub.gov.sg
(b) M&E Plan	-	
(c) Diversion	-	
City Gas Pte Ltd:		
(a) Planning/Submission	-	
(b) Installation/Inspection	-	
PowerGas Pte Ltd		
(a) Diversion	Mohamed Jamil	6916 5844/ mohamedjamil@spgroup.com.sg
NEA (Pollution Control)		
(a) Planning/Submission	-	
(b) Inspection	-	

SECTION 4

PROGRAMME

4.1 Overall Programme (Refer to attached master programme)

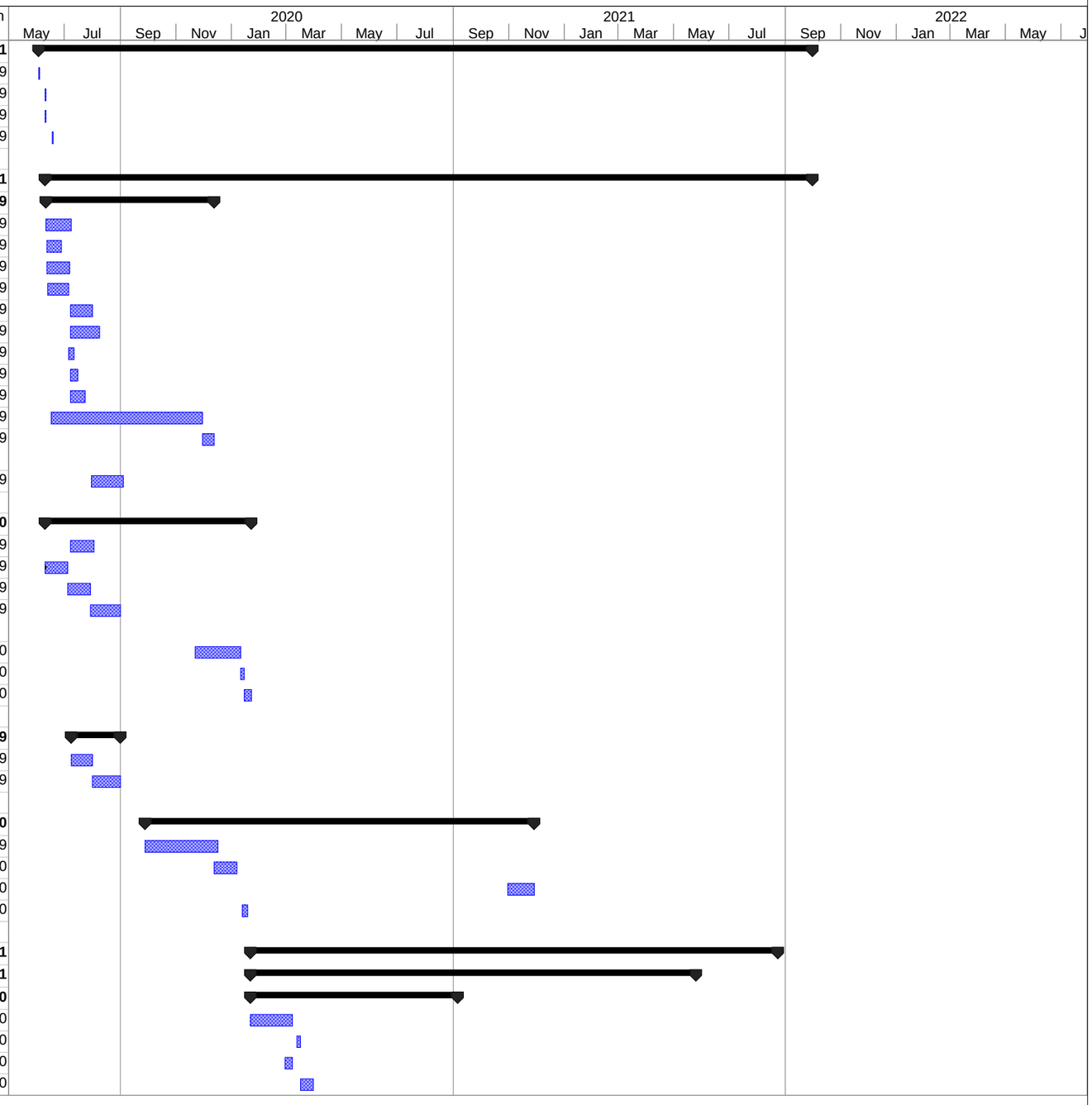
ID	TASK NAME	MONTHS	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D
1.	Preliminary Planning																									
2.	Planning Submission																									
3.	Detail Design																									
4.	BP Submission																									
5.	BP Submission (Amendments)																									
6.	Tender Period for Piling																									
7.	Tender Period for Sub-Structure																									
8.	Tender Period for Super-Structure																									
9.	Piling Period																									
10.	Sub-Structure Construction Period																									
11.	Super-Structure Construction Period																									
12.	TOP																									
13.	CSC																									

KWAN YONG CONSTRUCTION PTE LTD

PROPOSED ADDITIONS & ALTERATIONS TO EXISTING MAYFLOWER PRIMARY SCHOOL AT 200 ANG MO KIO AVENUE 5

REVISED CONSTRUCTION PROGRAMME

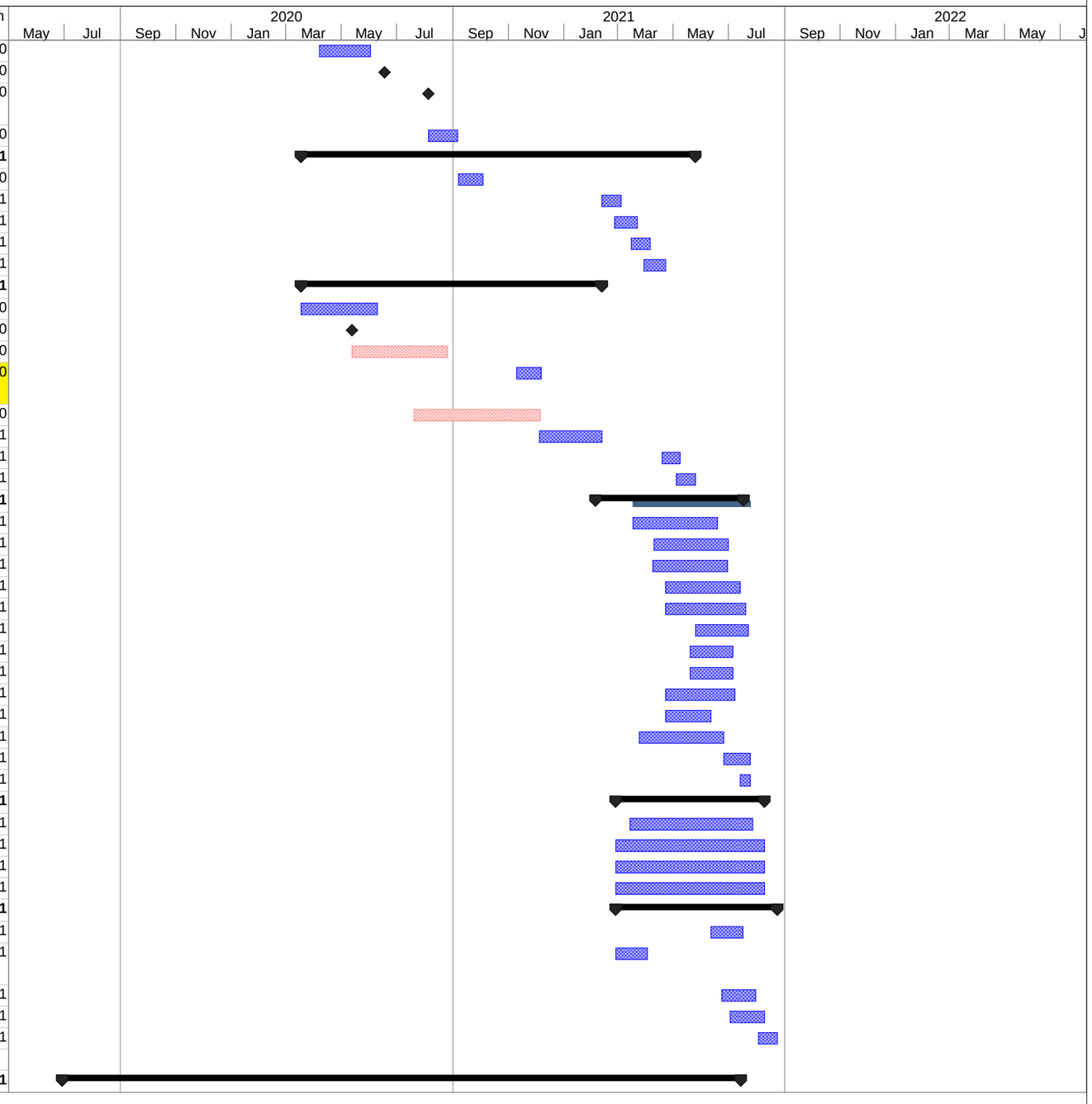
ID	Task Name	Duration	Planned Start	Planned Finish
1	**Proposed A&A To Existing Mayflower Primary School**	**731 days?**	**Mon 3/6/19**	**Thu 30/9/21**
2	RECEIVED LETTER OF AWARD	1 day	Mon 3/6/19	Mon 3/6/19
3	SITE POSSESSION	1 day	Mon 10/6/19	Mon 10/6/19
4	PROJECT COMMENCEMENT DATE	1 day	Mon 10/6/19	Mon 10/6/19
5	OBTAIN PERMIT TO COMMENCEMENT OF WORK	1 day	Tue 18/6/19	Tue 18/6/19
6				
7	**OVERALL CONTRACT WORKS**	**725 days?**	**Mon 10/6/19**	**Thu 30/9/21**
8	**MOBILISATION**	**159 days**	**Tue 11/6/19**	**Thu 12/12/19**
9	SITE FACILITY SETUP	24 days	Tue 11/6/19	Mon 8/7/19
10	PRE-CONDITION SURVEY	14 days	Wed 12/6/19	Thu 27/6/19
11	UNDERGROUND SERVICE DETECTION	22 days	Wed 12/6/19	Sat 6/7/19
12	PRE-COM SURVEY SUBISSION/APPROVAL	20 days	Thu 13/6/19	Fri 5/7/19
13	TEMPORARY HOARDING WORKS	21 days	Mon 8/7/19	Wed 31/7/19
14	ERSS SUBMISSION	28 days	Mon 8/7/19	Thu 8/8/19
15	SURVEYING SETTING OUT	5 days	Sat 6/7/19	Thu 11/7/19
16	TEMPORARY WASHBAY	7 days	Mon 8/7/19	Mon 15/7/19
17	INSTRUMENTATION WORKS	14 days	Mon 8/7/19	Tue 23/7/19
18	SHIFTING OF OG BOX AND REMOVAL OF TREE ONLY	143 days	Mon 17/6/19	Fri 29/11/19
19	SITE ACCESS EXTENDED FOR PPVC DELIVERY & DETENTION TANK ACCESS	11 days	Sat 30/11/19	Thu 12/12/19
20	M&E MATERIAL SUBSTRUCTURE SUBMISSION & APPROVA	30 days	Wed 31/7/19	Tue 3/9/19
21				
22	**DEMOLITION**	**195 days**	**Mon 10/6/19**	**Wed 22/1/20**
23	DEMOLITION NON STRUCTURAL	23 days	Mon 8/7/19	Fri 2/8/19
24	DEMOLITION PERMIT SUBMISSION/APPROVAL	22 days	Mon 10/6/19	Thu 4/7/19
25	BCA APPROVAL	21 days	Fri 5/7/19	Mon 29/7/19
26	DEMOLITION WORKS PHASE 1 (Blk B1 INCLUDING CONNECTIONS)	29 days	Tue 30/7/19	Sat 31/8/19
27	DEMOLITION WORKS PHASE 2 (Blk B2)	43 days	Fri 22/11/19	Fri 10/1/20
28	DIVERSION OF M&E SERVICES	3 days	Sat 11/1/20	Tue 14/1/20
29	CLEARING DEBRIS	7 days	Wed 15/1/20	Wed 22/1/20
30				
31	**TEST PILE WORKS**	**47 days**	**Tue 9/7/19**	**Sat 31/8/19**
32	ULTIMATE LOAD TEST	20 days	Tue 9/7/19	Wed 31/7/19
33	CONSULTANTS APPROVAL ON TEST REPORT	27 days	Thu 1/8/19	Sat 31/8/19
34				
35	**CBP**	**367 days**	**Sat 28/9/19**	**Sat 28/11/20**
36	CBP PILING (54 NOS.)	68 days	Sat 28/9/19	Mon 16/12/19
37	GROUTING PILE (53 NOS.)	21 days	Fri 13/12/19	Mon 6/1/20
38	CAPPING BEAM	25 days	Sat 31/10/20	Sat 28/11/20
39	EXCAVATION	6 days	Mon 13/1/20	Sat 18/1/20
40				
41	**BLOCK G - 16 MONTHS**	**498 days**	**Wed 22/1/20**	**Mon 23/8/21**
42	**STRUCTURAL WORK**	**421 days**	**Wed 22/1/20**	**Tue 25/5/21**
43	**SUBSTRUCTURE WORK**	**196 days**	**Wed 22/1/20**	**Sat 5/9/20**
44	BORED PILES (40 NOS.)	40 days	Wed 22/1/20	Sat 7/3/20
45	WORKING LOAD TEST (1 NO.)	3 days	Fri 13/3/20	Mon 16/3/20
46	PDA/PIT TEST (2 NOS. EACH)	7 days	Sat 29/2/20	Sat 7/3/20
47	EXCAVATION	12 days	Tue 17/3/20	Mon 30/3/20



DATE: 02 JAN 2020

Task	External Tasks	Manual Summary Rollup		Critical Split	
Milestone	Project Summary	Manual Summary		Path Driving Predecessor Milestone Task	
Summary	Group By Summary	Start-only		Path Driving Predecessor Summary Task	
Critical Task	Inactive Milestone	Finish-only		Path Driving Predecessor Normal Task	
Rolled Up Milestone	Inactive Summary	External Tasks		Progress	
Rolled Up Progress	Manual Task	External Milestone			
Split	Duration-only	Critical			

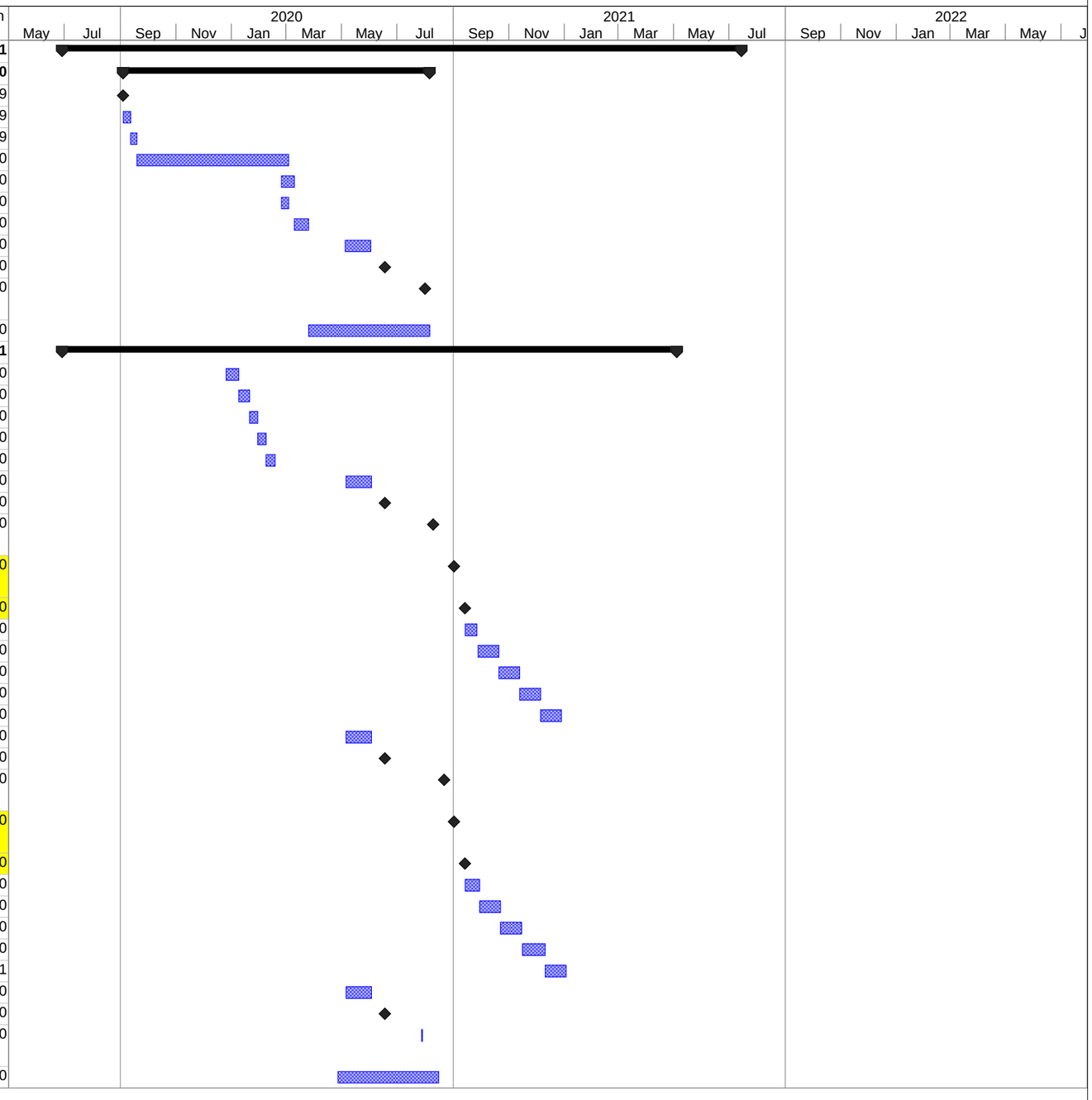
ID	Task Name	Duration	Planned Start	Planned Finish
48	WORK SUSPENSION DUE TO CIRCUIT BREAKER	48 days	Tue 7/4/20	Mon 1/6/20
49	OBTAIN BCA APPROVAL TO START WORK	0 days	Thu 18/6/20	Thu 18/6/20
50	ACTUAL START WORK WITH LIMITED REDUCED WORKFORCE AT BLK G	0 days	Wed 5/8/20	Wed 5/8/20
51	PILECAP (23 Nos)	28 days	Wed 5/8/20	Sat 5/9/20
52	**SUPERSTRUCTURE WORK**	**373 days**	**Wed 18/3/20**	**Tue 25/5/21**
53	1ST STOREY	24 days	Mon 7/9/20	Sat 3/10/20
54	2ND STOREY	18 days	Fri 12/2/21	Thu 4/3/21
55	3RD STOREY	21 days	Fri 26/2/21	Mon 22/3/21
56	4TH STOREY	18 days	Tue 16/3/21	Mon 5/4/21
57	5TH STOREY	21 days	Tue 30/3/21	Thu 22/4/21
58	**STEEL STRUCTURE**	**285 days**	**Wed 18/3/20**	**Thu 11/2/21**
59	MALAYSIA MCO	72 days	Wed 18/3/20	Tue 9/6/20
60	BCA APPROVAL DRAWINGS OBTAINED	0 days	Wed 13/5/20	Wed 13/5/20
61	SHOPDRAWINGS SUBMISSION AND CLEARANCE	90 days	Wed 13/5/20	Tue 25/8/20
62	MALAYSIA CMCO EXTENSION (9/11/2020 TO 6/12/2020)	24 days	Tue 10/11/20	Sun 6/12/20
63	STEEL MATERIAL PROCUREMENT & FABRICATION	120 days	Mon 20/7/20	Sat 5/12/20
64	INSTALLATION	60 days	Sat 5/12/20	Thu 11/2/21
65	STEEL TRUSS ROOF	18 days	Mon 19/4/21	Sat 8/5/21
66	METAL ROOF	18 days	Wed 5/5/21	Tue 25/5/21
67	**ARCHITECTURAL WORK**	**140 days**	**Fri 5/2/21**	**Sat 17/7/21**
68	PRECAST/BRICK/BLOCK WALL	80 days	Thu 18/3/21	Fri 18/6/21
69	WINDOW & DOOR FRAME	70 days	Sat 10/4/21	Wed 30/6/21
70	PLASTERING/SKIM COAT	70 days	Fri 9/4/21	Tue 29/6/21
71	WATERPROOFING	70 days	Fri 23/4/21	Tue 13/7/21
72	FLOOR FINISHES	75 days	Fri 23/4/21	Mon 19/7/21
73	ISH TIMBER FLOORING	50 days	Wed 26/5/21	Thu 22/7/21
74	PAINTING (INTERNAL)	40 days	Thu 20/5/21	Mon 5/7/21
75	PAINTING (EXTERNAL)	40 days	Thu 20/5/21	Mon 5/7/21
76	RAILING	65 days	Fri 23/4/21	Wed 7/7/21
77	ACOUSTIC WALL	43 days	Fri 23/4/21	Fri 11/6/21
78	DOOR & WINDOW PANEL	80 days	Thu 25/3/21	Fri 25/6/21
79	FITMENTS	25 days	Sat 26/6/21	Sat 24/7/21
80	SPORTS EQUIPMENTS	10 days	Wed 14/7/21	Sat 24/7/21
81	**M&E WORK**	**140 days**	**Sat 27/2/21**	**Mon 9/8/21**
82	SANITARY & PLUMBING	116 days	Mon 15/3/21	Tue 27/7/21
83	ELECTRICAL	140 days	Sat 27/2/21	Mon 9/8/21
84	ACMV	140 days	Sat 27/2/21	Mon 9/8/21
85	FIRE ALARM INSTALLATION	140 days	Sat 27/2/21	Mon 9/8/21
86	**PERFORMING ARTS & L1 CHANGING ROOM**	**152 days**	**Sat 27/2/21**	**Mon 23/8/21**
87	INSTALLATION OF CEILING FINISHES	30 days	Sat 12/6/21	Fri 16/7/21
88	INSTALLATION OF M&E INCLUDING SMOKE VENT, LIGHTING & AV	30 days	Sat 27/2/21	Fri 2/4/21
89	INSTALLATION OF WALL FINISHES	32 days	Thu 24/6/21	Fri 30/7/21
90	INSTALLATION OF FLOOR FINISHES	32 days	Sat 3/7/21	Mon 9/8/21
91	INSTALLATION OF SEATS	18 days	Tue 3/8/21	Mon 23/8/21
92				
93	**BLOCK F & B - 16 MONTHS**	**641 days?**	**Sat 29/6/19**	**Wed 14/7/21**



DATE: 02 JAN 2020

Task	External Tasks	Manual Summary Rollup		Critical Split	
Milestone	Project Summary	Manual Summary		Path Driving Predecessor Milestone Task	
Summary	Group By Summary	Start-only		Path Driving Predecessor Summary Task	
Critical Task	Inactive Milestone	Finish-only		Path Driving Predecessor Normal Task	
Rolled Up Milestone	Inactive Summary	External Tasks		Progress	
Rolled Up Progress	Manual Task	External Milestone			
Split	Duration-only	Critical			

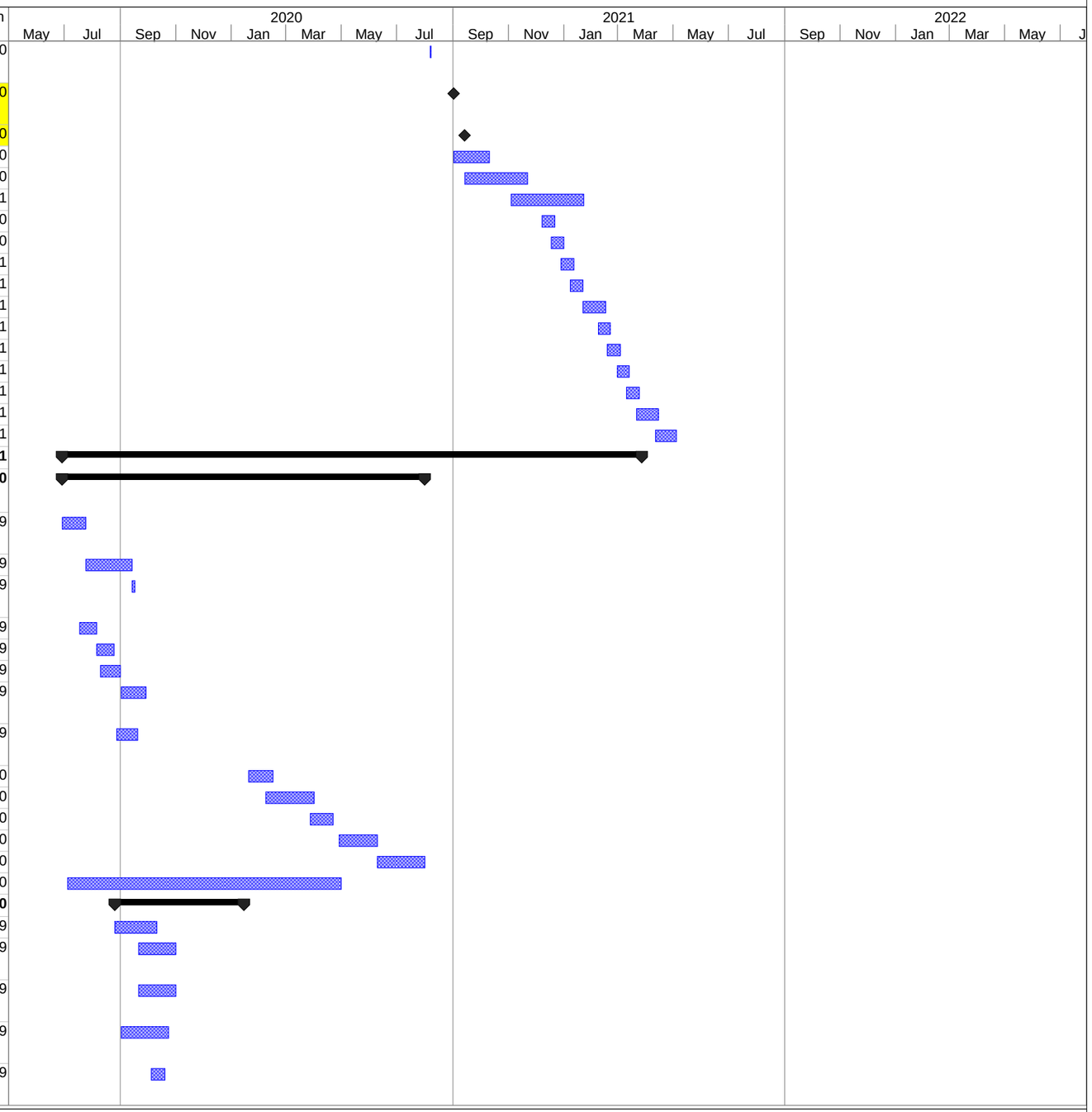
ID	Task Name	Duration	Planned Start	Planned Finish
94	**STRUCTURAL WORK**	**641 days?**	**Sat 29/6/19**	**Wed 14/7/21**
95	**SUBSTRUCTURE WORK**	**289 days**	**Wed 4/9/19**	**Wed 5/8/20**
96	EXISTING SINGTEL CABLE REMOVAL	0 days	Wed 4/9/19	Wed 4/9/19
97	EARTH REMOVAL FOR PLATFORM MAKING	7 days	Wed 4/9/19	Wed 11/9/19
98	PILING RIG MOBILIZATION	6 days	Thu 12/9/19	Wed 18/9/19
99	BORED PILES (82 NOS.)	143 days	Thu 19/9/19	Tue 3/3/20
100	WORKING LOAD TEST (1 NO.)	12 days	Tue 25/2/20	Mon 9/3/20
101	PDA/PIT TEST (1 NO. EACH)	7 days	Tue 25/2/20	Tue 3/3/20
102	EXCAVATION	14 days	Tue 10/3/20	Wed 25/3/20
103	WORK SUSPENSION DUE TO CIRCUIT BREAKER	24 days	Tue 5/5/20	Mon 1/6/20
104	OBTAIN BCA APPROVAL TO START WORK	0 days	Thu 18/6/20	Thu 18/6/20
105	ACTUAL START WORK WITH LIMITED REDUCED WORKFORCE AT BLK B	0 days	Sat 1/8/20	Sat 1/8/20
106	PILECAP (35 NOS)	114 days	Thu 26/3/20	Wed 5/8/20
107	**SUPERSTRUCTURE WORK**	**580 days?**	**Sat 29/6/19**	**Tue 4/5/21**
108	1ST STY STAIRCASE 1 (BLK F)	12 days	Thu 26/12/19	Wed 8/1/20
109	2ND STY STAIRCASE 1 (BLK F)	10 days	Thu 9/1/20	Mon 20/1/20
110	3RD STY STAIRCASE 1 (BLK F)	8 days	Tue 21/1/20	Wed 29/1/20
111	4TH STY STAIRCASE 1 (BLK F)	8 days	Thu 30/1/20	Fri 7/2/20
112	5TH STY STAIRCASE 1 (BLK F)	8 days	Sat 8/2/20	Mon 17/2/20
113	WORK SUSPENSION DUE TO CIRCUIT BREAKER	24 days	Wed 6/5/20	Tue 2/6/20
114	OBTAIN BCA APPROVAL TO START WORK	0 days	Thu 18/6/20	Thu 18/6/20
115	ACTUAL START WORK WITH LIMITED REDUCED WORKFORCE AT STAIRCASE 2 (BLK F)	0 days	Mon 10/8/20	Mon 10/8/20
116	RC SUBCONTRACTOR SURRENDER DUE TO IMPACT OF COVID-19 (REFER KYC EMAIL DATED 2/9/2020)	0 days	Wed 2/9/20	Wed 2/9/20
117	NEW RC SUBCONTRACTOR ON BOARD	0 days	Mon 14/9/20	Mon 14/9/20
118	1ST STY STAIRCASE 2 (BLK F)	12 days	Mon 14/9/20	Sat 26/9/20
119	2ND STY STAIRCASE 2 (BLK F)	20 days	Mon 28/9/20	Tue 20/10/20
120	3RD STY STAIRCASE 2 (BLK F)	20 days	Wed 21/10/20	Thu 12/11/20
121	4TH STY STAIRCASE 2 (BLK F)	20 days	Fri 13/11/20	Sat 5/12/20
122	5TH STY STAIRCASE 2 (BLK F)	20 days	Sun 6/12/20	Mon 28/12/20
123	WORK SUSPENSION DUE TO CIRCUIT BREAKER	24 days	Wed 6/5/20	Tue 2/6/20
124	OBTAIN BCA APPROVAL TO START WORK	0 days	Thu 18/6/20	Thu 18/6/20
125	ACTUAL START WORK WITH LIMITED REDUCED WORKFORCE AT BLK F&B	0 days	Sat 22/8/20	Sat 22/8/20
126	RC SUBCONTRACTOR SURRENDER DUE TO IMPACT OF COVID-19 (REFER KYC EMAIL DATED 2/9/2020)	0 days	Wed 2/9/20	Wed 2/9/20
127	NEW RC SUBCONTRACTOR ON BOARD	0 days	Mon 14/9/20	Mon 14/9/20
128	1ST STY STAIRCASE 3 (BLK B)	14 days	Mon 14/9/20	Tue 29/9/20
129	2ND STY STAIRCASE 3 (BLK B)	20 days	Wed 30/9/20	Thu 22/10/20
130	3RD STY STAIRCASE 3 (BLK B)	20 days	Fri 23/10/20	Sat 14/11/20
131	4TH STY STAIRCASE 3 (BLK B)	23 days	Mon 16/11/20	Thu 10/12/20
132	5TH STY STAIRCASE 3 (BLK B)	20 days	Fri 11/12/20	Sat 2/1/21
133	WORK SUSPENSION DUE TO CIRCUIT BREAKER	24 days	Wed 6/5/20	Tue 2/6/20
134	OBTAIN BCA APPROVAL TO START WORK	0 days	Thu 18/6/20	Thu 18/6/20
135	ACTUAL START WORK WITH LIMITED REDUCED WORKFORCE AT BLK F	1 day	Tue 28/7/20	Tue 28/7/20
136	1ST STOREY BLK F	96 days	Mon 27/4/20	Sat 15/8/20



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Task	External Tasks	Manual Summary Rollup	Critical Split
Milestone	Project Summary	Manual Summary	Path Driving Predecessor Milestone Task
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Critical Task	Inactive Milestone	Finish-only	Path Driving Predecessor Normal Task
Rolled Up Milestone	Inactive Summary	External Tasks	Progress
Rolled Up Progress	Manual Task	External Milestone	
Split	Duration-only	Critical	

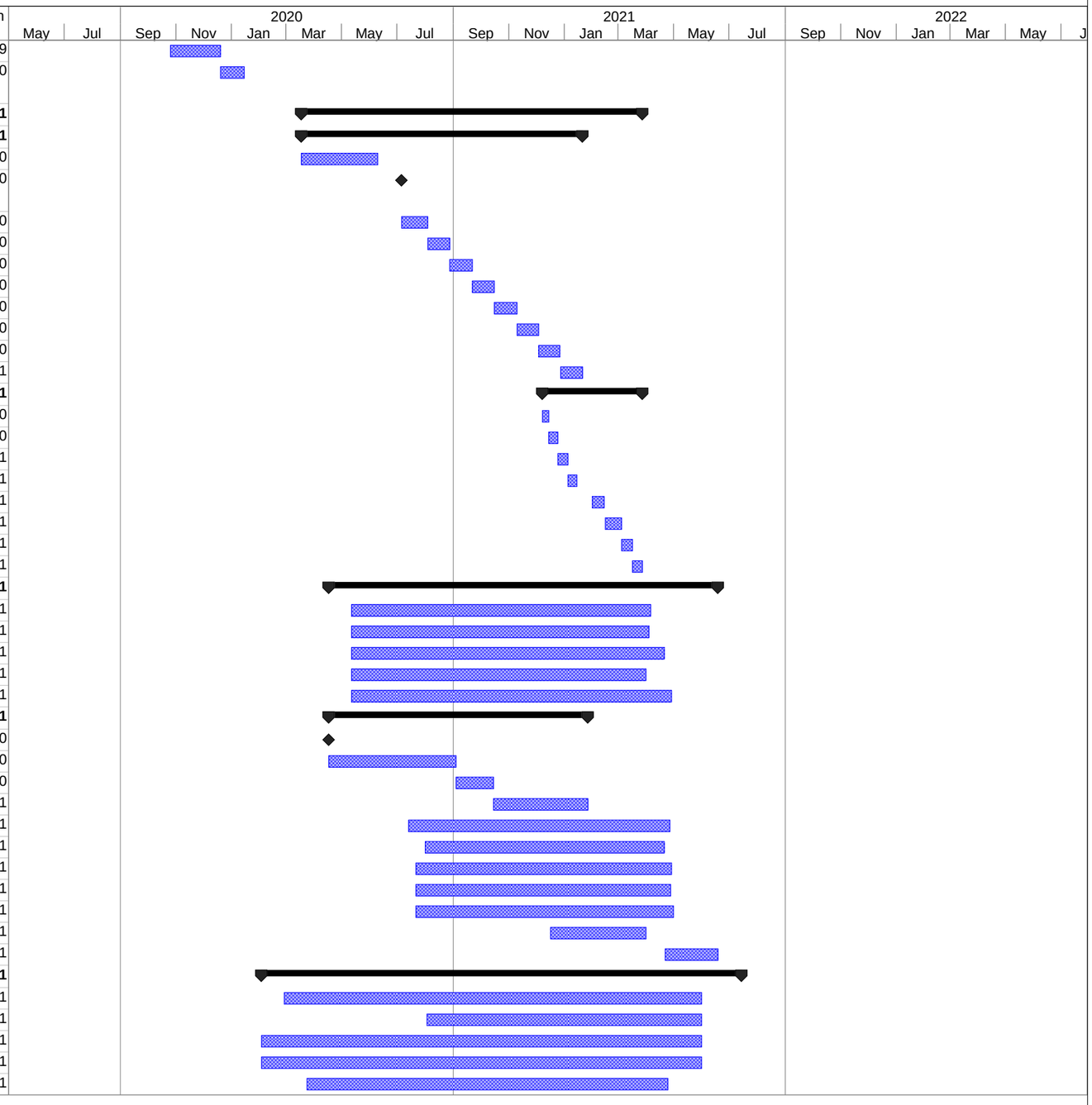
ID	Task Name	Duration	Planned Start	Planned Finish
137	ACTUAL START WORK WITH LIMITED REDUCED WORKFORCE AT BLK B	1 day	Fri 7/8/20	Fri 7/8/20
138	RC SUBCONTRACTOR SURRENDER DUE TO IMPACT OF COVID-19 (REFER KYC EMAIL DATED 2/9/2020)	0 days	Wed 2/9/20	Wed 2/9/20
139	NEW RC SUBCONTRACTOR ON BOARD	0 days	Mon 14/9/20	Mon 14/9/20
140	1ST STOREY BLK B	34 days	Wed 2/9/20	Sat 10/10/20
141	2ND STOREY BLK F TRANSFER BEAM	60 days	Mon 14/9/20	Sat 21/11/20
142	2ND STOREY BLK B TRANSFER BEAM	70 days	Wed 4/11/20	Fri 22/1/21
143	2ND STY PPVC BLK F	12 days	Tue 8/12/20	Mon 21/12/20
144	3RD STOREY BLK F	12 days	Fri 18/12/20	Thu 31/12/20
145	4TH STOREY BLK F	12 days	Tue 29/12/20	Mon 11/1/21
146	5TH STOREY BLK F	12 days	Fri 8/1/21	Thu 21/1/21
147	ROOF	21 days	Fri 22/1/21	Mon 15/2/21
148	2ND STY PPVC BLK B	12 days	Mon 8/2/21	Sat 20/2/21
149	3RD STOREY BLK B	12 days	Thu 18/2/21	Wed 3/3/21
150	4TH STOREY BLK B	12 days	Mon 1/3/21	Sat 13/3/21
151	5TH STOREY BLK B	12 days	Thu 11/3/21	Wed 24/3/21
152	ROOF & LIFT SHAFT ROOF BLK B	21 days	Mon 22/3/21	Wed 14/4/21
153	UPPER ROOF	20 days	Mon 12/4/21	Tue 4/5/21
154	**PPVC (2ND STOREY ONWARDS)**	**548 days?**	**Sat 29/6/19**	**Sat 27/3/21**
155	**MATERIAL & SHOPDRAWING SUBMISSION & APPROVAL**	**342 days**	**Sat 29/6/19**	**Fri 31/7/20**
156	PREPARATION OF PPVC STRUCTURAL SHOPDRAWINGS	22 days	Sat 29/6/19	Wed 24/7/19
157	PREPARATION OF ARCHI & M&E SHOPDRAWINGS	44 days	Thu 25/7/19	Fri 13/9/19
158	SUBMISSION OF PPVC CO-ORDINATED DRAWINGS	2 days	Sat 14/9/19	Mon 16/9/19
159	C&S MATERIAL, MOS & PQP SUBMISSION C&S	16 days	Thu 18/7/19	Mon 5/8/19
160	MATERIAL SUBMISSION AND APPROVAL C&S QP	17 days	Tue 6/8/19	Sat 24/8/19
161	ARCHI & M&E MATERIAL & MOS SUBMISSION	19 days	Sat 10/8/19	Sat 31/8/19
162	MATERIAL SUBMISSION AND APPROVAL ARCHI & M&E QP	24 days	Mon 2/9/19	Sat 28/9/19
163	SHOP DRAWING SUBMISSION APPROVAL BY C&S QP	20 days	Wed 28/8/19	Thu 19/9/19
164	SHOPDRAWING APPROVAL BY ARCHI & M&E QP	24 days	Mon 20/1/20	Sat 15/2/20
165	PROCUREMENT OF C&S MATERIALS	45 days	Sat 8/2/20	Tue 31/3/20
166	INSPECTION OF STEEL MEMBERS	21 days	Sat 28/3/20	Tue 21/4/20
167	MALAYSIA MCO	36 days	Wed 29/4/20	Tue 9/6/20
168	PROCUREMENT OF ARCHI & M&E MATERIALS	45 days	Wed 10/6/20	Fri 31/7/20
169	PPVC BIM SHOP DRAWINGS	258 days	Fri 5/7/19	Thu 30/4/20
170	**MOCK UP APPROVAL**	**122 days?**	**Mon 26/8/19**	**Tue 14/1/20**
171	MOCK UP PROCUREMENT OF STEEL MEMBERS	40 days	Mon 26/8/19	Thu 10/10/19
172	MOCK UP FABRICATION 2D STRUCTURAL FRAME (STEEL/STRUCTURAL FACTORY)	35 days	Sat 21/9/19	Thu 31/10/19
173	MOCK UP 3D STUCTURAL FITUP INSPECTION AND TRIAL ASSEMBLY	35 days	Sat 21/9/19	Thu 31/10/19
174	MOCK UP PROCUREMENT OF ARCHI & M&E MATERIALS	45 days?	Mon 2/9/19	Wed 23/10/19
175	MOCK UP ARCHI & M&E INSTALLATION (FIT UP FACTORY)	13 days	Sat 5/10/19	Sat 19/10/19



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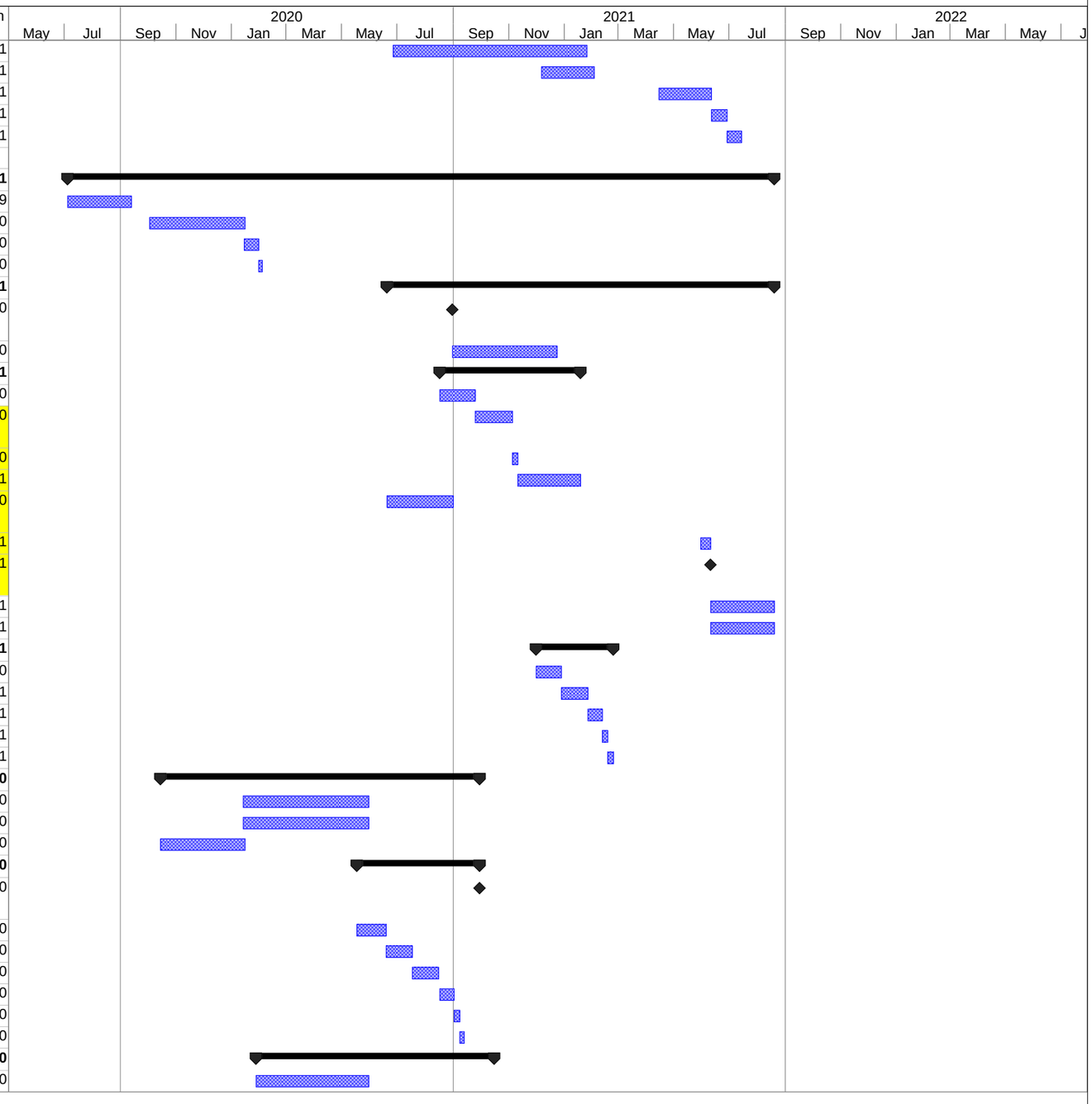
ID	Task Name	Duration	Planned Start	Planned Finish
176	MOCK UP ARCHI & M&E INSPECTION & APPROVA	47 days	Sat 26/10/19	Thu 19/12/19
177	MOE & AUTHORITIES MOCK UP INSPECTION & APPROVAL	22 days	Fri 20/12/19	Tue 14/1/20
178	**PRODUCTION**	**323 days**	**Wed 18/3/20**	**Sat 27/3/21**
179	**MASS PRODUCTION**	**266 days**	**Wed 18/3/20**	**Wed 20/1/21**
180	MALAYSIA MCO	72 days	Wed 18/3/20	Tue 9/6/20
181	BLK F START PRODUCTION DATE WITH LIMITED REDUCED WORKFORCE	0 days	Mon 6/7/20	Mon 6/7/20
182	2nd Sty Block F	25 days	Mon 6/7/20	Mon 3/8/20
183	3rd Sty Block F	21 days	Tue 4/8/20	Thu 27/8/20
184	4th Sty Block F	21 days	Fri 28/8/20	Mon 21/9/20
185	5th Sty Block F	21 days	Tue 22/9/20	Thu 15/10/20
186	2nd Sty Block B	21 days	Fri 16/10/20	Mon 9/11/20
187	3rd Sty Block B	21 days	Tue 10/11/20	Thu 3/12/20
188	4th Sty Block B	21 days	Fri 4/12/20	Sat 26/12/20
189	5th Sty Block B	21 days	Mon 28/12/20	Wed 20/1/21
190	**SITE INSTALLATION**	**95 days**	**Tue 8/12/20**	**Sat 27/3/21**
191	2nd Sty Block F	6 days	Tue 8/12/20	Mon 14/12/20
192	3rd Sty Block F	9 days	Tue 15/12/20	Thu 24/12/20
193	4th Sty Block F	9 days	Fri 25/12/20	Mon 4/1/21
194	5th Sty Block F	9 days	Tue 5/1/21	Thu 14/1/21
195	2nd Sty Block B	12 days	Mon 1/2/21	Sat 13/2/21
196	3rd Sty Block B	16 days	Mon 15/2/21	Thu 4/3/21
197	4th Sty Block B	10 days	Fri 5/3/21	Tue 16/3/21
198	5th Sty Block B	10 days	Wed 17/3/21	Sat 27/3/21
199	**ARCHITECTURAL WORK**	**368 days**	**Fri 17/4/20**	**Fri 18/6/21**
200	PRECAST/BRICK/BLOCK WALL	283 days	Tue 12/5/20	Mon 5/4/21
201	WINDOW & DOOR FRAME	282 days	Tue 12/5/20	Sat 3/4/21
202	PLASTERING	296 days	Tue 12/5/20	Tue 20/4/21
203	WATERPROOFING	279 days	Tue 12/5/20	Wed 31/3/21
204	FLOOR FINISHES	303 days	Tue 12/5/20	Wed 28/4/21
205	**ADDITIONAL SUNSHADE FOR PPVC BLOCKS**	**245 days**	**Fri 17/4/20**	**Tue 26/1/21**
206	SOI ISSUED	0 days	Fri 17/4/20	Fri 17/4/20
207	SHOPDRAWINGS SUBMISSION AND CLEARANCE	120 days	Fri 17/4/20	Thu 3/9/20
208	BCA SUBMISSION	35 days	Fri 4/9/20	Wed 14/10/20
209	FABRICATION AND INSTALLATION	90 days	Thu 15/10/20	Tue 26/1/21
210	PAINTING	247 days	Tue 14/7/20	Mon 26/4/21
211	RAILING	226 days	Sat 1/8/20	Tue 20/4/21
212	DOOR & WINDOW PANEL	242 days	Wed 22/7/20	Wed 28/4/21
213	FITMENT & CABINETRY	241 days	Wed 22/7/20	Tue 27/4/21
214	LOOSE FITTINGS	244 days	Wed 22/7/20	Fri 30/4/21
215	FABRICATION OF TENSILE ROOF MEMBRANE @MK	90 days	Thu 17/12/20	Wed 31/3/21
216	INSTALLATION OF TENSILE ROOF MEMBRANE @ MK	50 days	Thu 22/4/21	Fri 18/6/21
217	**M&E WORK**	**454 days**	**Mon 3/2/20**	**Wed 14/7/21**
218	SANITARY & PLUMBING	394 days	Fri 28/2/20	Mon 31/5/21
219	ELECTRICAL	260 days	Mon 3/8/20	Mon 31/5/21
220	ACMV	416 days	Mon 3/2/20	Mon 31/5/21
221	FIRE ALARM/FIRE FIGHTING	416 days	Mon 3/2/20	Mon 31/5/21
222	FIRE HYDRANT PUMP & TANK CONSTRUCTION	342 days	Tue 24/3/20	Sat 24/4/21



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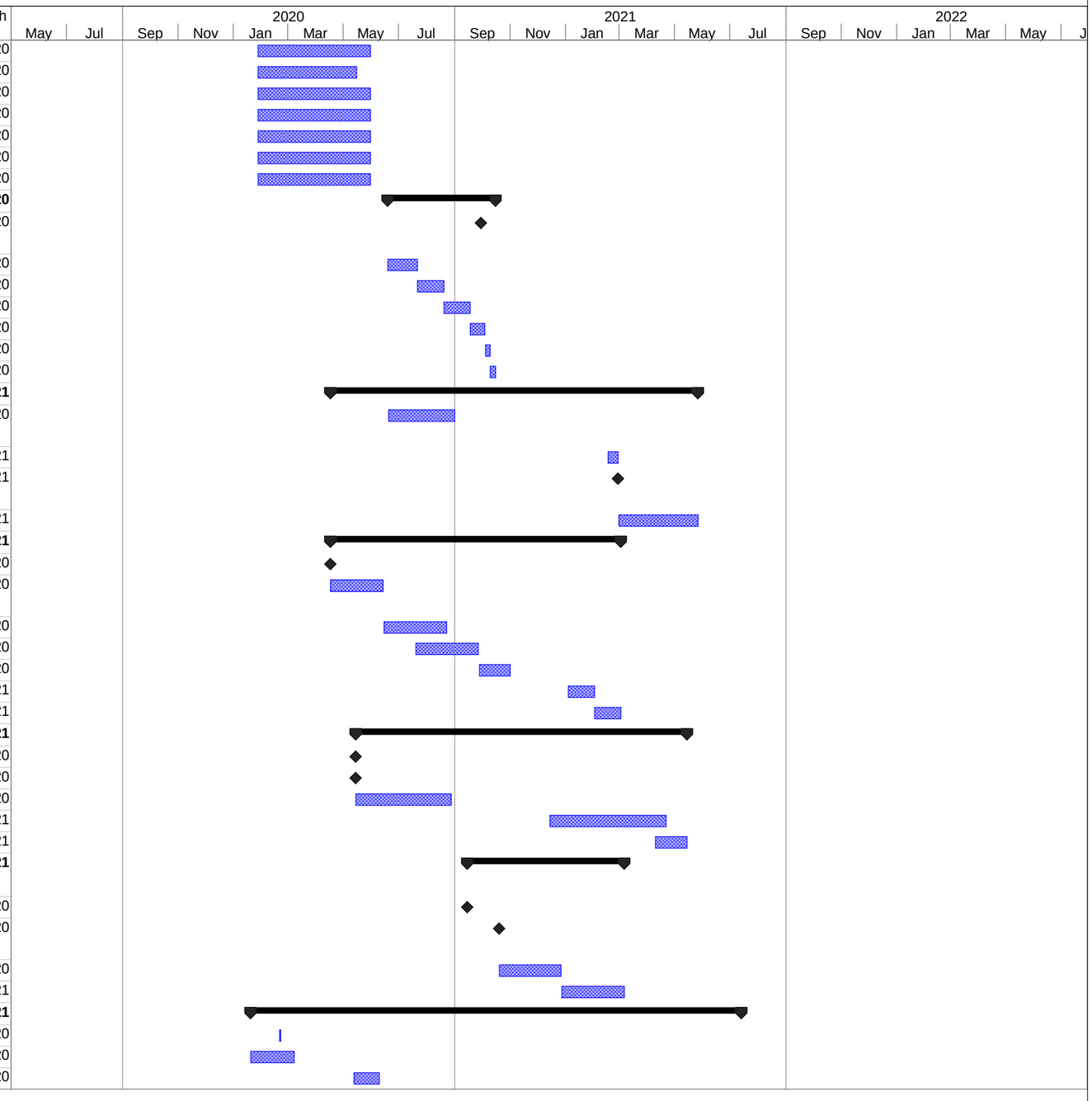
ID	Task Name	Duration	Planned Start	Planned Finish
223	LIFT SHAFT BRICKUP & CONSTRUCTION	183 days	Sat 27/6/20	Mon 25/1/21
224	LIFT DELIVERY	50 days	Mon 7/12/20	Tue 2/2/21
225	LIFT INSTALLATION	50 days	Thu 15/4/21	Fri 11/6/21
226	LIFT T&C	14 days	Sat 12/6/21	Mon 28/6/21
227	LIFT READY FOR TOP	14 days	Tue 29/6/21	Wed 14/7/21
228				
229	**A&A WORKS TO EXISTING BLOCKS**	**667 days**	**Fri 5/7/19**	**Thu 19/8/21**
230	MATERIAL & SHOPDRAWING SUBMISSION & APPROVAL	60 days	Fri 5/7/19	Thu 12/9/19
231	CONFIRMATION OF MATERIALS & SHOPDRAWINGS	90 days	Thu 3/10/19	Wed 15/1/20
232	A&A MOCK UP	14 days	Wed 15/1/20	Thu 30/1/20
233	A&A MOCK UP & APPROVAL	3 days	Fri 31/1/20	Mon 3/2/20
234	**BLOCK A**	**366 days**	**Sat 20/6/20**	**Thu 19/8/21**
235	ACTUAL RESUMING WORK WITH LIMITED REDUCED MANPOWER	0 days	Mon 31/8/20	Mon 31/8/20
236	TOILETS	100 days	Mon 31/8/20	Wed 23/12/20
237	**GENERAL OFFICE**	**134 days**	**Mon 17/8/20**	**Mon 18/1/21**
238	A&A WORKS FOR GENERAL OFFICE	34 days	Mon 17/8/20	Thu 24/9/20
239	GENERAL OFFICE ON HOLD DUE TO DESIGN CHANGES (REFER ARCHITECT EMAIL DATED	35 days	Fri 25/9/20	Wed 4/11/20
240	SOI ISSUED	5 days	Thu 5/11/20	Tue 10/11/20
241	A&A WORKS	60 days	Wed 11/11/20	Mon 18/1/21
242	ERECTION OF CTQ AT BLK E 3RD STY WITH AUTHORITY APPROVAL	62 days	Sat 20/6/20	Mon 31/8/20
243	DISMANTLING OF CTQ	10 days	Mon 31/5/21	Thu 10/6/21
244	ACTUAL RESUMING WORK WITH LIMITED REDUCED MANPOWER	0 days	Thu 10/6/21	Thu 10/6/21
245	MEETING ROOMS	60 days	Fri 11/6/21	Thu 19/8/21
246	EWS CLASSROOMS	60 days	Fri 11/6/21	Thu 19/8/21
247	**ADDITIONAL CEILING WORKS**	**74 days**	**Tue 1/12/20**	**Tue 23/2/21**
248	M&E CONCEALED SERVICES	25 days	Tue 1/12/20	Mon 28/12/20
249	ADDITIONAL NEW CEILING	25 days	Tue 29/12/20	Tue 26/1/21
250	M&E FITTING	14 days	Wed 27/1/21	Thu 11/2/21
251	FINAL PAINTING WORKS	5 days	Fri 12/2/21	Wed 17/2/21
252	REMOVE THE FLOOR PROTECTION	5 days	Thu 18/2/21	Tue 23/2/21
253	**BLOCK C**	**301 days**	**Tue 15/10/19**	**Wed 30/9/20**
254	SCIENCE ROOMS	119 days	Tue 14/1/20	Sat 30/5/20
255	CABINET WIITH SINK & WASTE PIPES	119 days	Tue 14/1/20	Sat 30/5/20
256	IC & WASTE PIPE & DRAINS	80 days	Tue 15/10/19	Wed 15/1/20
257	**NEW CEILING WORKS**	**116 days**	**Mon 18/5/20**	**Wed 30/9/20**
258	CONSULTANT CONFIRMATION OF ROOF REPAIRING (BY OTHERS)	0 days	Wed 30/9/20	Wed 30/9/20
259	ROOF REPAIRS WORKS (BY OTHERS)	28 days	Mon 18/5/20	Thu 18/6/20
260	M&E CONCEALED SERVICES	25 days	Fri 19/6/20	Fri 17/7/20
261	NEW CEILING	25 days	Sat 18/7/20	Sat 15/8/20
262	M&E FITTING	14 days	Mon 17/8/20	Tue 1/9/20
263	FINAL PAINTING WORKS	5 days	Wed 2/9/20	Mon 7/9/20
264	REMOVE THE FLOOR PROTECTION	5 days	Tue 8/9/20	Sat 12/9/20
265	**BLOCK D**	**225 days**	**Tue 28/1/20**	**Thu 15/10/20**
266	LSP & LSM ROOMS	107 days	Tue 28/1/20	Sat 30/5/20



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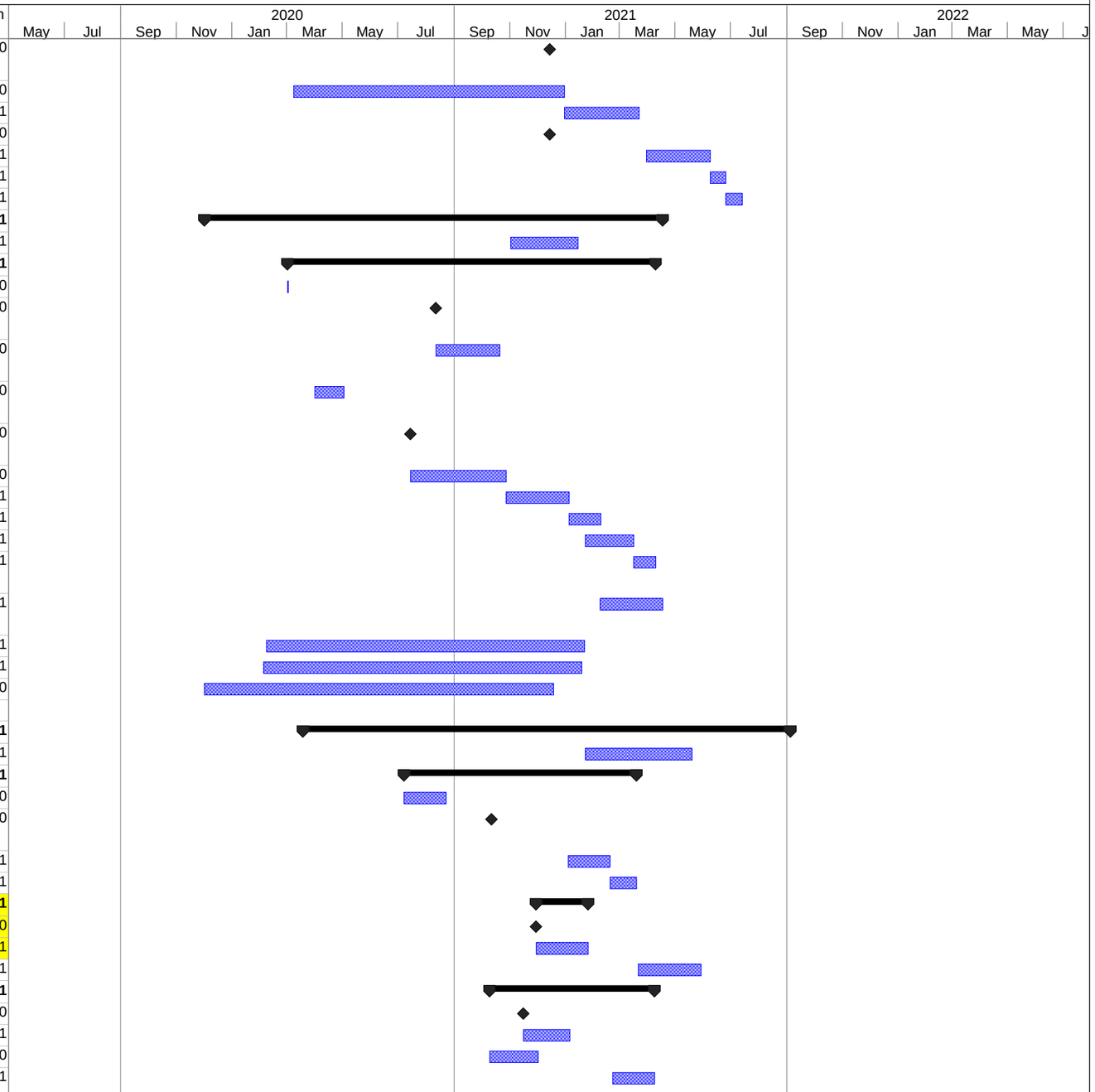
ID	Task Name	Duration	Planned Start	Planned Finish
267	LBS INTERVENTION ROOM	107 days	Tue 28/1/20	Sat 30/5/20
268	STUDENT CARE CENTRE	94 days	Tue 28/1/20	Fri 15/5/20
269	MOTHER TONGUE LANGUAGE ROOMS	107 days	Tue 28/1/20	Sat 30/5/20
270	MODULAR CHINESE LANGUAGE ROOMS	107 days	Tue 28/1/20	Sat 30/5/20
271	SBB ROOM	107 days	Tue 28/1/20	Sat 30/5/20
272	VOID SPACE	107 days	Tue 28/1/20	Sat 30/5/20
273	CABINET WIITH SINK & WASTE PIPES	107 days	Tue 28/1/20	Sat 30/5/20
274	**NEW CEILING WORKS**	**102 days**	**Fri 19/6/20**	**Thu 15/10/20**
275	CONSULTANT CONFIRMATION OF ROOF REPAIRING (BY OTHERS)	0 days	Wed 30/9/20	Wed 30/9/20
276	ROOF REPAIRS WORKS (BY OTHERS)	28 days	Fri 19/6/20	Tue 21/7/20
277	M&E CONCEALED SERVICES	25 days	Wed 22/7/20	Wed 19/8/20
278	NEW CEILING	25 days	Thu 20/8/20	Thu 17/9/20
279	M&E FITTING	14 days	Fri 18/9/20	Sat 3/10/20
280	FINAL PAINTING WORKS	5 days	Mon 5/10/20	Fri 9/10/20
281	REMOVE THE FLOOR PROTECTION	5 days	Sat 10/10/20	Thu 15/10/20
282	**BLOCK E**	**348 days**	**Fri 17/4/20**	**Wed 26/5/21**
283	ERECTION OF CTQ AT BLK E 3RD STY WITH AUHORITY APPROVAL	62 days	Sat 20/6/20	Mon 31/8/20
284	DISMANTLING OF CTQ	10 days	Wed 17/2/21	Sat 27/2/21
285	ACTUAL RESUMING WORK WITH LIMITED REDUCED MANPOWER	0 days	Sat 27/2/21	Sat 27/2/21
286	FLEXSI 2	75 days	Mon 1/3/21	Wed 26/5/21
287	**ADDITIONAL FIRE SUPPRESION SYSTEM**	**275 days**	**Fri 17/4/20**	**Tue 2/3/21**
288	SOI ISSUED	0 days	Fri 17/4/20	Fri 17/4/20
289	PE DESIGN & SHOPDRAWINGS SUBMISSION & CLEARANCE	50 days	Fri 17/4/20	Sat 13/6/20
290	SCDF SUBMISSION AND CLEARANCE	60 days	Mon 15/6/20	Sat 22/8/20
291	MATERIAL LEAD TIME	60 days	Mon 20/7/20	Sat 26/9/20
292	INSTALLATION	30 days	Mon 28/9/20	Sat 31/10/20
293	SOLENOID INSTALLATION (BY OTHERS)	25 days	Mon 4/1/21	Mon 1/2/21
294	TESTING & COMMISSIONING	25 days	Tue 2/2/21	Tue 2/3/21
295	**ADDITIONAL STAIRCASE AT BLK E**	**314 days**	**Fri 15/5/20**	**Fri 14/5/21**
296	SOI ISSUED	0 days	Fri 15/5/20	Fri 15/5/20
297	CONSTRUCTION DRAWINGS ISSUED	0 days	Fri 15/5/20	Fri 15/5/20
298	SHOPDRAWINGS SUBMISSION AND CLEARANCE	90 days	Fri 15/5/20	Thu 27/8/20
299	CONSTRUCTION FOR STAIRCASE E	110 days	Tue 15/12/20	Wed 21/4/21
300	ARCHITECTURAL WORKS	30 days	Sat 10/4/21	Fri 14/5/21
301	**ADDITIONAL WORK AT EXISTING STAIRCASE E1 DUE TO FSSD COMPLIANCE**	**150 days**	**Tue 15/9/20**	**Sat 6/3/21**
302	RECEIVED ARCHITECT SOI	0 days	Tue 15/9/20	Tue 15/9/20
303	ACTUAL START WORK WITH LIMITED REDUCED MANPOWER	0 days	Mon 19/10/20	Mon 19/10/20
304	ADDITIONAL WALL UP	60 days	Tue 20/10/20	Sat 26/12/20
305	ADDITIONAL DRY RISER WORK	60 days	Mon 28/12/20	Sat 6/3/21
306	**BLOCK C&D**	**465 days**	**Mon 20/1/20**	**Tue 13/7/21**
307	RECEIPT OF NOA FOR ST#06	1 day	Fri 21/2/20	Fri 21/2/20
308	LIFT PIT PILING	42 days	Mon 20/1/20	Sat 7/3/20
309	WORK SUSPENSION DUE TO CIRCUIT BREAKER	24 days	Wed 13/5/20	Tue 9/6/20



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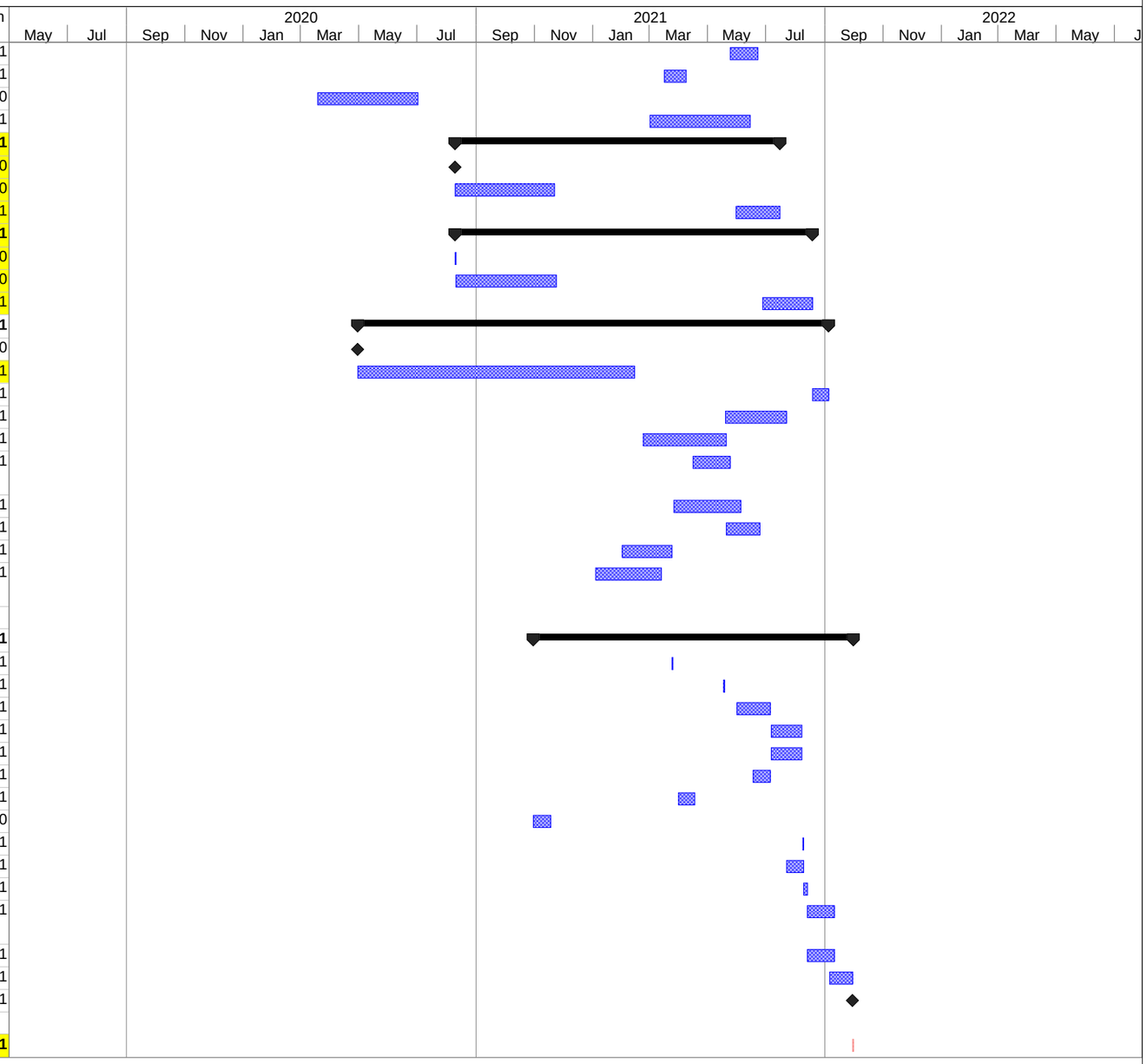
ID	Task Name	Duration	Planned Start	Planned Finish
310	ACTUAL START WORK OF LIFT AREA WITH MINIMUM WORKFORCE	0 days	Tue 15/12/20	Tue 15/12/20
311	LIFT PIT SUBSTRUCTURE	256 days	Mon 9/3/20	Wed 30/12/20
312	LIFT SHAFT WALL INCLUDE LANDINGS & PWD	70 days	Thu 31/12/20	Mon 22/3/21
313	LIFT DELIVERY	0 days	Tue 15/12/20	Tue 15/12/20
314	LIFT INSTALLATION	60 days	Wed 31/3/21	Tue 8/6/21
315	LIFT T&C	15 days	Wed 9/6/21	Fri 25/6/21
316	LIFT APPLICATION OF PTO	15 days	Sat 26/6/21	Tue 13/7/21
317	**ALL EXISTING BLOCKS**	**433 days**	**Mon 2/12/19**	**Sat 17/4/21**
318	PAINTING WORKS	65 days	Mon 2/11/20	Thu 14/1/21
319	**RE-ROOFING WORKS AT BLOCK E, MPH**	**348 days**	**Mon 2/3/20**	**Fri 9/4/21**
320	RECEIPT OF SOI	1 day	Mon 2/3/20	Mon 2/3/20
321	ACTUAL START WORKS WITH LIMITED REDUCED WORK FORCES	0 days	Wed 12/8/20	Wed 12/8/20
322	PROVIDE PROTECTION TO TIMBER FLOORING & EXISTING CEILING REMOVAL	60 days	Wed 12/8/20	Tue 20/10/20
323	SUBMISSION OF CLAY ROOF SAMPLES FOR APPROVAL	28 days	Wed 1/4/20	Sat 2/5/20
324	APPROVAL & CONFIRMED BY ARCHITECT IN EMAIL DATED 14/07/2020	0 days	Wed 15/7/20	Wed 15/7/20
325	INDENT & DELIVERY OF CLAY ROOF TILES	90 days	Wed 15/7/20	Tue 27/10/20
326	REPLACEMENT OF CLAY ROOF SYSTEM	60 days	Wed 28/10/20	Mon 4/1/21
327	SMOKE & HEAT DETECTORS	30 days	Tue 5/1/21	Mon 8/2/21
328	INSTALLATION OF METAL CEILING	45 days	Sat 23/1/21	Tue 16/3/21
329	REMOVAL OF PROTECTION & REINSTATEMENT WORKS	21 days	Wed 17/3/21	Fri 9/4/21
330	ADDITONAL EXISTS LIGHT IN THE EXISTING CLASSROOM DUE TO FSSD COMPLIANCE	60 days	Mon 8/2/21	Sat 17/4/21
331	WATERPROOFING WORKS	300 days	Sat 8/2/20	Thu 21/1/21
332	REPLACEMENT OF PA SYSTEM	300 days	Wed 5/2/20	Mon 18/1/21
333	NEW FIRE ALARM SYSTEM	330 days	Mon 2/12/19	Fri 18/12/20
334				
335	**EXTERNAL WORK**	**460 days**	**Thu 19/3/20**	**Sat 4/9/21**
336	DRAIN WORKS	100 days	Sat 23/1/21	Wed 19/5/21
337	**DETENTION TANK**	**220 days**	**Wed 8/7/20**	**Fri 19/3/21**
338	RC PILING WORK	40 days	Wed 8/7/20	Sat 22/8/20
339	ACTUAL START WORKS WITH LIMITED REDUCED WORK FORCES	0 days	Mon 12/10/20	Mon 12/10/20
340	PRECAST WALL AND BASE SLAB	40 days	Mon 4/1/21	Thu 18/2/21
341	DETENTION TANK TOP SLAB	25 days	Fri 19/2/21	Fri 19/3/21
342	**ADDITIONAL RETAINING WALL**	**50 days**	**Mon 30/11/20**	**Mon 25/1/21**
343	SOI ISSUED	0 days	Mon 30/11/20	Mon 30/11/20
344	CONSTRUCTION WORK FOR RETAINING WALL	50 days	Mon 30/11/20	Mon 25/1/21
345	COVERED LINKWAYS	60 days	Mon 22/3/21	Sat 29/5/21
346	**ENTRANCE CUVERT**	**156 days**	**Sat 10/10/20**	**Thu 8/4/21**
347	CONSULTANT ISSUE AUTHORITY BP APPROVAL PLAN	0 days	Mon 16/11/20	Mon 16/11/20
348	LTA PROMPT SUBMISSION AND CLEARANCE	45 days	Mon 16/11/20	Tue 5/1/21
349	TELECOM LEAD IN PIPE COMPLETION	45 days	Sat 10/10/20	Tue 1/12/20
350	CONSTRUCTION OF ENTRANCE CULVERT INCLUDED RC PILING WORKS	40 days	Mon 22/2/21	Thu 8/4/21



DATE: 02 JAN 2020

Task	External Tasks	Manual Summary Rollup	Critical Split
Milestone	Project Summary	Manual Summary	Path Driving Predecessor Milestone Task
Summary	Group By Summary	Start-only	Path Driving Predecessor Summary Task
Critical Task	Inactive Milestone	Finish-only	Path Driving Predecessor Normal Task
Rolled Up Milestone	Inactive Summary	External Tasks	Progress
Rolled Up Progress	Manual Task	External Milestone	
Split	Duration-only	Critical	

ID	Task Name	Duration	Planned Start	Planned Finish
351	GUARD HOUSE	25 days	Tue 25/5/21	Tue 22/6/21
352	PARADE SQUARE	20 days	Wed 17/3/21	Thu 8/4/21
353	OUTDOOR EQUIPMENT SUBMISSION & APPROVAL	90 days	Thu 19/3/20	Wed 1/7/20
354	OEL INSTALLATION	90 days	Tue 2/3/21	Mon 14/6/21
355	**OUTDOOR FITNESS PLAYGROUND**	**293 days**	**Mon 10/8/20**	**Thu 15/7/21**
356	CONSULTANT APPROVAL	0 days	Mon 10/8/20	Mon 10/8/20
357	MATERIAL LEAD TIME DUE TO COVID-19	90 days	Mon 10/8/20	Sat 21/11/20
358	INSTALLATION OF PLAY EQUIPMENT	40 days	Mon 31/5/21	Thu 15/7/21
359	**OUTDOOR EWS PLAY AREA**	**322 days**	**Mon 10/8/20**	**Wed 18/8/21**
360	CONSULTANT APPROVAL	1 day	Mon 10/8/20	Mon 10/8/20
361	MATERIAL LEAD TIME DUE TO COVID-19	90 days	Tue 11/8/20	Mon 23/11/20
362	INSTALLATION OF PLAY EQUIPMENT	45 days	Mon 28/6/21	Wed 18/8/21
363	**EDPM**	**424 days**	**Thu 30/4/20**	**Sat 4/9/21**
364	CONSULTANT APPROVAL	0 days	Thu 30/4/20	Thu 30/4/20
365	MATERIAL LEAD TIME DUE TO COVID-19 (PENDING)	250 days	Thu 30/4/20	Sat 13/2/21
366	INSTALLATION	15 days	Thu 19/8/21	Sat 4/9/21
367	BRC FENCING & GATE	55 days	Thu 20/5/21	Thu 22/7/21
368	FIRE EINGINE ACCESS	75 days	Tue 23/2/21	Thu 20/5/21
369	ADDITONALFENCING GATE AND CRASH BARRIER WALL DUE TO AUTHORITY REQUIREMENT	33 days	Fri 16/4/21	Mon 24/5/21
370	LANDSCAPE/TREE PLANTING WORKS	60 days	Sat 27/3/21	Fri 4/6/21
371	SIGNAGE WORKS	30 days	Fri 21/5/21	Thu 24/6/21
372	ESS EXTENSION OF SWITCHBOARD	45 days	Mon 1/2/21	Wed 24/3/21
373	REPLACEMENT OF FIRE HYDRANT SYSTEM & NEW FIRE HYDRANT SYSTEM	60 days	Mon 4/1/21	Sat 13/3/21
374				
375	**MILESTONES INSPECTION DATE**	**288 days**	**Sat 31/10/20**	**Thu 30/9/21**
376	POWER TURN-ON	1 day	Thu 25/3/21	Thu 25/3/21
377	GAS TURN-ON (BY OTHERS)	1 day	Tue 18/5/21	Tue 18/5/21
378	M&E SYSTEM TESTING	30 days	Tue 1/6/21	Mon 5/7/21
379	PUB (WATER) INSPECTION & CLEARANCE	28 days	Wed 7/7/21	Sat 7/8/21
380	PUB (SEWER) INSPECTION & CLEARANCE	28 days	Wed 7/7/21	Sat 7/8/21
381	LAN ROOM HANDOVER	15 days	Fri 18/6/21	Mon 5/7/21
382	TEL RISER HANDOVER TO TELCO	15 days	Thu 1/4/21	Sat 17/4/21
383	HANDING OVER MDF ROOM	15 days	Sat 31/10/20	Tue 17/11/20
384	WATER TURN ON	1 day	Mon 9/8/21	Mon 9/8/21
385	M&E COMBINED TESTING	15 days	Fri 23/7/21	Mon 9/8/21
386	PRE-RI INSPECTION	4 days	Tue 10/8/21	Fri 13/8/21
387	RI INSPECTION (M&E) INCLUDING SMOKE VENT & FIRE SUPPRESION SYSTEM	24 days	Sat 14/8/21	Fri 10/9/21
388	RI INSPECTION (ARCHITECTURAL)	24 days	Sat 14/8/21	Fri 10/9/21
389	TOP INSPECTION & COMPLIANCE	21 days	Mon 6/9/21	Wed 29/9/21
390	OBTAIN TOP	0 days	Wed 29/9/21	Wed 29/9/21
391				
392	**HANDOVER**	**1 day**	**Thu 30/9/21**	**Thu 30/9/21**



DATE: 02 JAN 2020

Task	External Tasks	Manual Summary Rollup	Critical Split
Milestone	Project Summary	Manual Summary	Path Driving Predecessor Milestone Task
Summary	Group By Summary	Start-only	Path Driving Predecessor Summary Task
Critical Task	Inactive Milestone	Finish-only	Path Driving Predecessor Normal Task
Rolled Up Milestone	Inactive Summary	External Tasks	Progress
Rolled Up Progress	Manual Task	External Milestone	
Split	Duration-only	Critical	

SECTION 4

PROGRAMME

4.2 Authority Submission Status for M&E Services

Service	Authority	Original Submission		Comments/Resubmission						Approval/
		Scheduled	Actual	Comment	Resubmit	Comment	Resubmit	Comment	Resubmit	Clearance
Application for Electricity Supply	SP Services Ltd	NA								
Power Supply Substation	SP PowerGrid Ltd	NA								
Metering Layout	SP Services Ltd	NA								
Sanitary Installation	PUB Water Reclamation (Network) Dept	27/5/2019	30/5/2019							3/6/2019
Domestic Water Supply	PUB (Water Supply) Network Dept	14/5/2019	1/7/2019	18/8/2019	1/11/2019					4/12/2019
Gas Supply Installation	City Gas Pte Ltd	NA								
Air Conditioning & Ventilation Inst.	FSSD	20/1/2021	8/2/2021							1/3/2021
Fire Fighting & Alarm Installation	FSSD	8/2/2021	7/4/2021							29/4/2021
Telephone Installation	TFCC	27/5/2019	9/10/2019							14/10/2019
Broadband Co-axial Cable System (BCS)	Starhub Cable Vision	NA								
Fuel Storage	FSSD	NA								
	NEA (Pollution Control)									

SECTION 4

PROGRAMME

4.3 Authority Submission Status for M&E Services (Amendments)

Service	Authority	Original Submission		Comments/Resubmission						Approval/
		Scheduled	Actual	Comment	Resubmit	Comment	Resubmit	Comment	Resubmit	Clearance
Application for Electricity Supply	SP Services Ltd									
Power Supply Substation	SP PowerGrid Ltd									
Metering Layout	SP Services Ltd									
Sanitary Installation	PUB Water Reclamation (Network) Dept									
Domestic Water Supply	PUB (Water Supply) Network Dept									
Gas Supply Installation	City Gas Pte Ltd									
Air Conditioning & Ventilation Inst.	FSSD		9/5/22							14/7/22
Fire Fighting & Alarm Installation	FSSD		20/7/22							29/7/22
Telephone Installation	TFCC									
Broadband Co-axial Cable System (BCS)	Starhub Cable Vision									
Fuel Storage	FSSD									
	NEA (Pollution Control)									

SECTION 5

PROJECT RECORDS

5.1 List of Internal Files

Standard Files

File Ref:		File Ref:	
- Owner	✓	- Architect	✓
- Authorities	✓	- Other Consultants	✓
- Contractors	✓	- PQP/QSP	✓
- CF/CC	✓		

Project Files to be initiated by PM as and when required

File Ref:		File Ref:		File Ref:	

(✓*where applicable*)

SECTION 5

PROJECT RECORDS

5.2 Filing of Drawings

The following team members shall take charge of filing of drawings, stamping "SUPERSEDED" drawings, etc.

Description	Team Member
Incoming Architectural Floor Plans	Softcopy saved in the server
Incoming Architectural Sketches/Details	
Incoming Structural Drawings	
M&E Drawings - Electrical Installation - Lift & Escalator Installation - Air Conditioning & Ventilation Installation - Fire Fighting & Alarm Installation - Plumbing & Sanitary Installation	
Other Drawings	

SECTION 6

INTERFACING

6.1 Method of Interface

Description	Method of Interface	
Client's Review & Approval	M&E Design Report	✓
	Pre-planned meeting at fixed intervals	✓
	Telefax, letter and telephone	✓
	Email	✓
Interface With External Design Teams	M&E Design Report	✓
	Pre-planned meeting at fixed intervals	✓
	Telefax, letter and telephone	✓
	Email	✓
Interface Between Internal Design Teams	Telephone	✓
	Email	✓
	Internal Project Team Meeting	✓
	Circulation of Information	✓

(✓*where applicable*)

SECTION 6

INTERFACING

6.2 Internal Design Interface – NOT APPLICABLE

Item No.	Description*	Required From	Required By	Date Required	Remarks

** Information required by INTERNAL DESIGN TEAM MEMBERS*

SECTION 6

INTERFACING

6.3 Circulation of Documents to External Parties

	Code: A - Approval Required C - For Comments I - For Information Only	Client/ Client Rep.	* Client's Project Manager	Architect	Structural Engineer	Quantity Surveyor	
1.	**Letters/Fax:**						
a.	Project Design	A	I	I	-	-	
b.	Project Administration						
c.	Project Cost Estimate/Contract Cost	A	I	I	-	I	
2.	**Drawings**						
a.	Outline Design Drgs.	A	I	C	I	I	
b.	Sketch Design Drgs.	A	I	C	I	I	
c.	Final Design Drgs.	A	I	C	I	I	
d.	Shop Drawings	I	I	A	-	-	
e.	As Built Drgs.	I	I	I	-	-	
3.	**Other Document**						
a.	Specification	A	I	I	I	I	
b.	Tender Document	A	I	I	I	I	
c.	Tender Evaluation Report	A	I	I	I	I	
d.	Design Report	A	I	I	-	-	
e.	Progress Report	-	-	-	-	-	
f.	Financial Report	-	-	-	-	-	
g.	Minutes of Meeting	A	I	I	-	-	
h.	Inspection Report	I	I	I	-	-	
i.	Testing & Comm. Report	I	I	I	-	-	
j.	O & M Manual	I	I	I	-	-	

*Note: Applicable only, if the client engaged a Project Manager.

SECTION 7

WORK AUTHORISATION

Activity \ Authorised Signatories	PD	QP	PM	AE	SS
General Correspondences with Client			√	√	
General Correspondences with Other Consultants			√	√	
M&E Cost Estimate Report	√	√	√		
M&E Design Report	√	√	√		
Check Prints		√			
Tender Drawing Approval	√	√	√		
Tender Specification Approval	√	√	√		
List of Tenderers	√	√	√		
Tender Questionnaires	√	√	√		
Tender Reports	√	√	√		
Draft Letter of Award	√	√	√		
Review of Contractor's Shop Drawing			√	√	
Review of Contractor's Technical Submittal			√	√	
Review of Contractor's Sample Submittal			√	√	
Contractor's Request for Deviation		√	√		
Progress Payment Valuation Form	√		√		
Final Account Valuation	√		√		
Draft Variation Order	√		√		
Engineer/Architect's Instruction/Direction	√		√		
Site Instruction/Direction			√		
Correspondence/Submission to Authorities	√	√			

(✓*where authorised*)

Key to abbreviations:

PD : Project Director
QP : Qualified Person
PM : Project Manager/Assistant Project Manager
AE : Assistant Engineer
SS : ACEPL Site Staff

SECTION 8

DESIGN INPUT & METHODOLOGY

8.1 List of Client's Standards, Reference Documents or Brief

ITEM	KEPT BY
MOE Handbook	Intranet

8.2 List of Applicable Code of Practice and Regulations

Services	Title of Code of Practice/Standard
Electrical Wiring	SS 638:2018
Lightning Protection System	SS 555:2018
Emergency Voice Communication System	SS 546:2009
Air Conditioning & Ventilation Installation	SS 553:2016/Fire Code 2013
Lift Installation	SS 550:2009
Sprinkler System	NA
Dry Riser System	SS 575:2012
Automatic Fire Alarm System	SS 645:2019
Sanitary System	Code of Practice on Sewerage & Sanitary Works
Plumbing System	SS 636:2018
Town Gas/LPG Supply System	NA
Boiler and Steam Supply System	NA
Mechanical Smoke Control System	NA

SECTION 8

DESIGN INPUT & METHODOLOGY

8.3 List of Design Guide or Handbook Used

Carrier's Handbook of Air Conditioning System Design

ASHRAE Handbooks

Institute of Plumbing's Plumbing Services Design Guide

8.4 List of Pre-Consultation and Waiver

S/N	Description	Date of Application	Date of Approval	Remarks
1	PUB (Sanitary) Proposed use of shallow floor traps at existing classrooms to serve new sinks. Submission No. CR20190328-24981 Waiver Ref. No. -	28 March 2019	11 April 2019	Refer to Appendix 1-1 for PUB's letter of no objection.
2	A new floor trap is provided for every existing classroom to serve the new sink. The floor trap will be connected to new ICs as shown in the attached drawing. In order to meet the gradient and invert level of existing IC, one waste sump is proposed to be provided. Is it permitted for the waste sump without gully trap to be connected to IC as shown in the drawing?	7 November 2019	12 November 2019	PUB has no objection for your proposal to convert the IC in question to a sump. However, QP shall ensure only sullage water is allowed to be discharged to the sump and all Sanitary Appliances are connected to at least a Floor Trap before the sump. The cover of the sump shall also be capable to block smell and prevent ingress of rainwater. There shall also be no bend in any of the Branch Drain Lines.

S/N	Description	Date of Application	Date of Approval	Remarks
3	**Floor trap depth more than 600mm** As PPVC (Prefabricated Prefinished Volumetric Construction) method is adopted for the project, the depth of floor trap from floor slab is more than 600mm. Please refer to the attached sections showing the depth of floor trap from the floor slab at 2nd storey and at typical floor (applicable from 3rd storey to 5th storey). We also attach the drawings showing location of the floor traps which are more than 600 depth. We propose that the floor trap at the soffit of the transfer slab to be connected to the pipes using the standard hubless pipe clip where the floor trap can be removed easily in case of chokage.	15 September 2020	28 October 2020	PUB has no objection.
4	**No Pipe from WCs above Commercial Unit** The pipes from the toilets are running above meeting rooms, staff rooms and classrooms in the school. Please refer to the attached drawings from 2nd to 5th storey. In accordance with the Code of Practice for Sanitary Works, no pipes from WC shall be located at the ceiling of a commercial unit in non-residential building. As schools are considered as institutional development, we would like to have clarification that the prohibition does not apply to the school.	5 November 2020	16 November 2020	PUB replied that waiver application is not required if there is no overhead pipes at commercial unit e.g. tenanted shops and area where food or drink is stored, prepared, cooked or served.

S/N	Description	Date of Application	Date of Approval	Remarks
1	SCDF (i) Is automatic fire alarm system is required to be extended to existing blocks? (ii) To confirm if smoke vent is required for Performing Arts Studio of 450 sqm without sprinkler. (iii) Is PWD requirement applicable to existing blocks? Consultation Ref No. CON/C04830/16	11 October 2016	12 October 2016	Refer to Appendix 2-1 for SCDF's Consultation Reply Letter of 12 Oct 2016.
2	(i) Clause 6.6 Fire Lift (a) To waive provision of fire lifts. (ii) Clause 6.4.1 General (Sprinkler installation) To waive provision of sprinkler system. (iii) Clause 8.2 (Voice communication system & FCC) To waive provision of FCC. Waiver Ref. No. WVR/01792/17	10 July 2017	14 July 2017	Refer to Appendix 2-2 for SCDF's Waiver Decision Letter of 14 July 2017.
3	Is it acceptable to use revolving lights as visual fire alarm system for hearing impaired students in the school? Consultation Ref No. CON/C04882/18	25 October 2018	5 November 2018	Refer to Appendix 2-3 for SCDF's Consultation Reply Letter of 5 Nov 2018.

*To fill in actual information

Project Ref No. : A1987-00151-2016
Submission No. : CR20190328-24981
Date : 11/04/2019

Tel : 67313242
Email: lim_qun_yuan@pub.gov.sg

Alpha Consulting Engineers Pte Ltd
2 BUKIT MERAH CENTRAL #16-00

SINGAPORE 159835

ATTN: **Choong Choon Guan**

Dear Sir,

NO OBJECTION FOR SEWERAGE MATTERS

PROJECT TITLE : PROPOSED ADDITION & ALTERATION TO EXISTING MAYFLOWER PRIMARY SCHOOL UNDER PERI UPGRADING WITH PROVISION OF INDOOR SPORTS HALL ON LOTS 14821T, 14818T, 14823K, 14825X MK 18 AT 200 ANG MO KIO AVENUE 5

PROJECT REFERENCE NO. : A1987-00151-2016

1. We refer to your Written Pre consultation submission dated 28/03/2019

2. We have no objection to the proposal as shown in the submitted plans

3. The design, materials and installation of sanitary plumbing system shall comply with the Sewerage and Drainage (Sanitary Works) Regulations and the Code of Practice on Sewerage and Sanitary Works.

4. Please note that the shallow floor trap should comply with the following requirements

Descriptions	**Standard Requirements**
Depth of Water Seal	Min 50mm
Passage Clearance	Min 25mm
Outlet Diameter	Min 75mm
Floor Trap (Water Compartment)	Shall be integral type, removable trap is not allowed.
Floor Trap Grating and Anti-Mosquito Valve	Shall incorporate an approved type of floor trap grating and anti-mosquito valve,
Service Plug in the Floor Trap (if provided)	To provide permanent instruction label to the service plug.

5. A copy of the "Requirements on Shallow Floor Trap" is attached for your strict compliance

Note:

A. Please resubmit your plans to Public Utilities Board (PUB) for approval should there be any changes to the sewerage system in the

approved plan.

B. Starting from 1st April 2018, Licensed Plumber (LP) is required to carry out the sanitary works.

C. Please note that PUB will conduct low air pressure test on selected sanitary plumbing system as part of the TOP inspection to confirm the WC connections and floor traps are air tight.

Yours sincerely,
(Sent by e-corenet, no signature is required)
Lim Qun Yuan
BUILDING PLAN UNIT
PUB

Annex 1

General Requirements

SEWERAGE

1. **All developments shall be connected to public sewer, where available. For re-development, existing connection to public sewer shall be re-used, where it is technically feasible to do so.**

2. **All new connections shall be made to sewers/manholes located outside private land.**

3. **QP shall seek separate approval/consent from the affected land owner (including SLA as owner for state land) to lay new sewer and carry out the sewerage works. Such approval or consent from the land owner or SLA shall not include any conditions that require PUB to provide letter of undertaking to divert the sewer in future.**

4. **Where the existing sewer is located within neighbouring lot and a new sewer connection is proposed to serve the re-development site, the existing sewer connection shall not be sealed or abandoned till the new sewer connection is completed and passed for use. The QP shall ensure that a written permission from the owner of the neighbouring lot and PUB DC and DP clearances are obtained before the commencement of work on the new sewer connection.**

5. **For continued use of the existing sewer connection to serve the above development, "CCTV inspection report" (refer to point 11) to the existing sewer connection to be submitted to PUB and water tightness test to be carried out upon completion of works to show that the connection is in a serviceable condition and without leak.**

6. **If the connection to public sewer is defective, the QP shall either abandon/seal/repair/replace the existing defective connection or provide a new connection to public sewer. QP shall also verify on site as to whether there is any existing connection to public sewer from neighbouring premises passing through the development site.**

7. **The finish floor level of the house/development and the levels of the sanitary appliances, floor traps and inspection chambers (usually on the compound) shall be constructed suitably higher than the top level of the manhole to which the sanitary drainline is connected. This is to avoid used water overflow from the inspection chamber, floor traps and other sanitary appliances into the development lot. If it cannot be achieved after raising the proposed platform level, QP should assess the risk and propose contingency measures to mitigate the risk of backflow of used water from the public sewers.**

8. **Details of the following proposed works, where applicable, shall be submitted to PUB under detailed plan (DP) submission via Corenet (PUB-DPCLR) for approval prior to the commencement of works.**

    a. **Sanitary (sanitary drainage and plumbing work including last IC connection to public sewer)**

b. Sanitary M&E (used water pumping system)

c. Sewer (proposed sewers/MH, abandon sewers/MH)

d. RC Trench

e. Works Affecting Minor Drainage

f. Works Affecting Other Drainage

9. No piling / building work shall commence within the required setback of existing sewer, even if the sewer is to be abandoned later, until the details of sewer diversion has been approved and the proposed sewer diversion has been constructed and passed for use by PUB.

10. QP shall apply for approval for works affecting public sewerage system via POWS (http://bpu.pub.gov.sg/POWS) if there is any "specified activity to be carried out within the public sewer corridor" (Refer to https://www.pub.gov.sg/Documents/WRN_AdvisoryNotes.pdf) and pre- construction CCTV survey reports and video to be submitted to PUB.

a. The pre-construction CCTV survey report (including DVD video) shall be submitted before carrying out any temporary/piling/building works and shall show clearly the condition of all relevant existing sewers.

b. The post-construction CCTV survey report (refer to point 11 below) shall be submitted when the QP applies for sewerage clearance for TOP/CSC (PUB-BPU-COMPOFWORK).

c. For small redevelopment/A&A works of single landed property (terrace, semi-detached and detached house), the submission of pre-construction CCTV survey report is waived and QP is only required to submit the post-construction CCTV survey report.

11. From 1 Oct 2017 onwards, CCTV report and video can be submitted online by a registered CCTV contractor. After the QP make a relevant form application via POWS (http://bpu.pub.gov.sg/POWS), QP shall then provide the CCTV contractor a covering letter confirming that he has reviewed and accepted the CCTV reports/videos and the E-submission number generated by the POWS system. For example, sewer pre-construction CCTV to be submitted after submission of POWS and submission of POWS and submission of sewer post construction CCTV is to be submitted after submission of PUB-BPU-COMPOFWORK.

12. The standard requirements for CCTV inspection survey and report can be viewed at https://www.pub.gov.sg/Documents/CCTV%20Inspection%20Requirement%20(plus%20Appendices)_25Aug2009-.pdf. From 1 Jan 2013, PUB only accepts CCTV inspection and reports from PUB Registered CCTV contractors. The list of latest PUB registered CCTV contractors is available at https://www.pub.gov.sg/Documents/RegisteredCCTVContractor.pdf.

13. Sanitary pipes (i.e. waste pipes, discharge pipes and discharge stacks) shall not be placed above potable water storage tank, electrical transformer/ switchgear or above swimming pools and their balancing tanks.

14. In all multi-storey residential buildings (e.g. condominium, apartment, HDB block) excluding single landed houses, the sanitary pipes shall be located such that:

a. No pipes from adjacent dwelling units shall be located within the dry areas (such as bedroom, living room, dining room, study room, etc) of a dwelling unit.

b. No pipes serving WC shall be located within the kitchen area of any dwelling unit.

c. No pipes from kitchen sink, floor traps and discharge pipes shall be sited directly above the stove in the kitchen.

15. In all non-residential buildings (e.g. Commercial buildings, shopping mall, hotel, hospital, etc), the sanitary pipes shall be located such that:

a. No pipes from WC shall be located at the ceiling of a commercial unit.

b. No discharge stack or overhead sanitary pipe shall be sited within areas of the food establishment/F&B unit where food is cooked, prepared, stored or served.

16. Common discharge pipe/stack maintained by the Town Councils or Management Corporations shall be located in common areas or toilets/bathrooms.

17. PUB may carry out audit water testing of the reused or new sanitary drainlines and sewers (including inspection chambers and manholes) before granting the sewerage clearance for PUB CSC. Sanitary drainlines/inspection chambers and sewer/manholes failing water tests would need to be rectified. QP shall give at least 3 weeks of advance notice to PUB to carry out the water tests to avoid delay in obtaining the CSC.

18. QP shall submit Form B via Corenet to obtain the PUB's approval before allowing the workmen to enter the public sewer/manhole or other confined spaces to carry out any works including inspection.

19. **Upon completion of sanitary and sewer work, QP shall apply for sewerage clearance for PUB TOP/CSC by submitting the PUB-BPU-COMPOFWORK form to PUB via Corenet. The project site may be subjected to an audit inspection by PUB before sewerage clearance is granted.**

SCDF
The Life Saving Force

SINGAPORE CIVIL DEFENCE FORCE

Please quote our ref. no. in all future correspondences

Your Ref :

Our Ref : CON/C04830/16

Date : 12-Oct-2016

Consultation Reply Letter

LAUD ARCHITECTS PTE LTD
510 THOMSON ROAD
#02-08 SLF BUILDING
SINGAPORE 298135
Att: MELVIN HJ TAN

Dear Sir or Madam

PROPOSED ADDITION & ALTERATION TO EXISTING MAYFLOWER PRIMARY SCHOOL UNDER PERI UPGRADING WITH PROVISION OF INDOOR SPORTS HALL (ISH) & PERFORMING ARTS STUDIO (PARTS) ON LOTS 14821T 14818T 14823K 14825X MK 18 AT 200 ANG MO KIO AVENUE 5

Thank you for seeking our consultation. Attached are the records of consultation made on 11-Oct-2016. Please quote the reference number in correspondence with us.

Yours sincerely

TAN YI YANG
for Commissioner
Singapore Civil Defence Force

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SPECIAL COMMENDATION SINGAPORE QUALITY AWARD 2015 WINNER

SINGAPORE INNOVATION CLASS

PEOPLE DEVELOPER SINGAPORE

SINGAPORE SERVICE CLASS

SCDF – A member of the Home Team

TEL : 6848 1729 FAX: 6848 1490 EMAIL: TAN_Yi_Yang@scdf.gov.sg
HQ SINGAPORE CIVIL DEFENCE FORCE, 91 UBI AVENUE 4, SINGAPORE 408827

Reference Number: CON/C04830/16

Record Of Consultation

Item 1: See drawings. Proposed new block (Block B) will be protected with automatic fire alarm, the rest of the existing blocks are provided with manual alarm. Is it required for the automatic fire alarm to be extended to the existing blocks?

Comments: The automatic fire alarm shall be required to be extended to the existing blocks if they are not considered separate buildings from the new Block B under the Fire Code. For a two buildings to be considered separate buildings, they must comply to Cl.3.2.2(b) in the Fire Code 2013 and setback distance.

Record Of Consultation

Item 2: To confirm if smoke vent is required for Performing Arts Studio of 450 sqm without sprinkler.

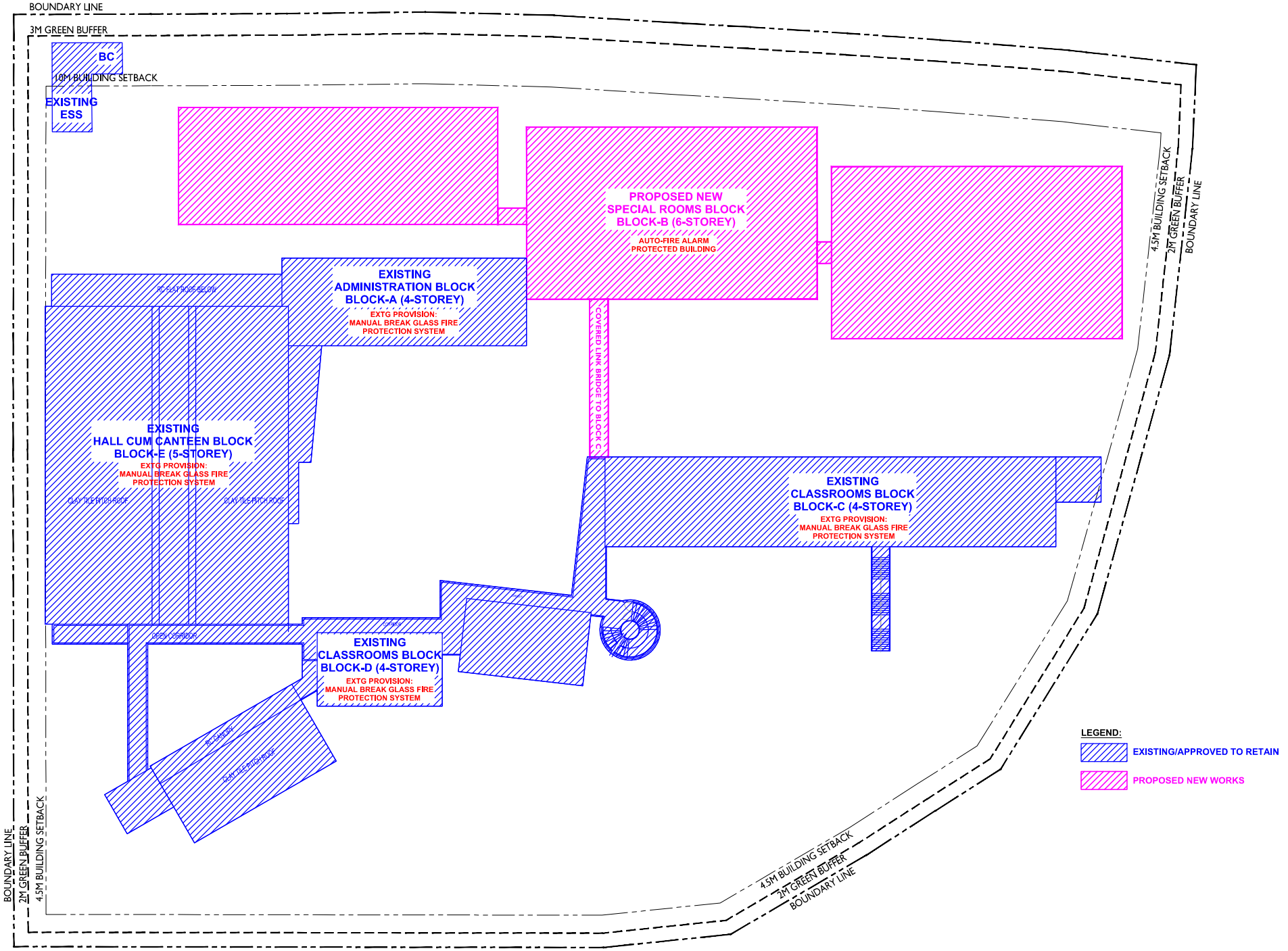
Comments: Yes, smoke vent is required.

Record Of Consultation

Item 3: See drawings. Proposed new block (Block B) will be provided with PWD requirements. Is it required for the existing blocks to be provided with PWD requirements as well?

Comments: PWD provisions shall be required to be extended to the existing blocks if they are not considered separate buildings from the new Block B under the Fire Code. For a two buildings to be considered separate buildings, they must comply to Cl.3.2.2(b) in the Fire Code 2013 and setback distance.

TEL : 6848 1729 FAX: 6848 1490 EMAIL: TAN_Yi_Yang@scdf.gov.sg



PROPOSED A&A TO EXT'G MAYFLOWER PR SCH
(PERI UPGRADING)
200 ANG MO KIO AVE 5, SINGAPORE
LAUD/151/MAY

ROOF PLAN

29 SEPTEMBER 2016

0 1 5 10 20
SCALE 1 :500 (A3)

LAUD

SINGAPORE CIVIL DEFENCE FORCE

Please quote our ref. no. in all future correspondences

Your Ref : ES20170707-59731 Our Ref : WVR/01792/17

Date : 14-Jul-2017

Waiver Decision Letter

Applicant:

MINISTRY OF EDUCATION
285 GHIM MOH ROAD
MINISTRY OF EDUCATION
SINGAPORE 279622

Attn: KERSLEY CHAN

Qualified Professional:

LAUD ARCHITECTS PTE LTD
510 THOMSON ROAD
#02-08 SLF BUILDING
SINGAPORE 298135

Attn: MELVIN H J TAN

Dear Sir or Madam

PROPOSED ADDITION & ALTERATION TO EXISTING MAYFLOWER PRIMARY SCHOOL UNDER PERI UPGRADING WITH PROVISION OF INDOOR SPORTS HALL ON LOTS 14821T, 14818T, 14823K, 14825X MK 18 AT 200 ANG MO KIO AVENUE 5

Please refer to your waiver application dated 10-Jul-2017.

The decision(s) is / are:

HQ SINGAPORE CIVIL DEFENCE FORCE, 91 UBI AVENUE 4, SINGAPORE 408827
TEL: 6848 1476 FAX: 6848 1490 EMAIL: CHONG_Kim_Yuan@scdf.gov.sg

Issue No : 1

Description: Chapter 6.6 Fire Lift (a) With the exception of Purpose Group I and II buildings, all other buildings shall be provided with at least two fire lifts if the habitable height exceeds 24m. - To waive provision of Fire Lift

Status: Approved

Issue No : 2

Description: 6.4 Sprinkler Installation 6.4.1 General -The following shall be provided with an automatic sprinkler system: (b) Every storey of a building, except that of Group I or II, the habitable height of which is more than 24m irrespective of whether or not the compartmentation requirements are complied with. -To waive provision of Sprinkler System

Status: Approved

Issue No : 3

Description: 8.2 Voice Communication System & Fire Command Centre 8.2.1 System requirements (i) For all large buildings under Purpose Groups III (not applicable to primary school, secondary school and junior colleges), IV, V, VI, VII & VIII with gross floor area greater than 5000 m² or having a total occupant load exceeding 1000 persons; or (ii) For all buildings belonging to Purpose Groups III, IV, V, VI, VII, and VIII of more than 24m in habitable height. - To waive provision of FCC

Status: Approved

Yours sincerely

CHONG KIM YUAN
for Commissioner
Singapore Civil Defence Force

Note for Waiver Granted: The Commissioner, SCDF has, on receipt of your application, decided to grant a waiver under section 27 of the Fire Safety Act subject to the terms and conditions attached to this letter. You are put on notice that the waiver may be revoked at the discretion of the Commissioner if any of the following circumstances occur: a) The fire safety environment or policy under which the waiver(s) was granted has changed. b) The condition(s) under which the waiver(s) was granted was not complied with; or c) The advance of technology allows the waived fire safety requirement(s) to be effectively addressed.

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HQ SINGAPORE CIVIL DEFENCE FORCE, 91 UBI AVENUE 4, SINGAPORE 408827
TEL: 6848 1476 FAX: 6848 1490 EMAIL: CHONG_Kim_Yuan@scdf.gov.sg

SCDF
The Life Saving Force

SINGAPORE CIVIL DEFENCE FORCE

Please quote our ref. no. in all future correspondences

Your Ref :

Our Ref : CON/C04882/18

Date : 05-Nov-2018

Consultation Reply Letter

ALPHA CONSULTING ENGINEERS PTE LTD
2 BUKIT MERAH CENTRAL
#16-00 SPRING SINGAPORE
SINGAPORE 159835
Att: KEVIN KEE

Dear Sir or Madam

PROPOSED ADDITION & ALTERATION TO EXISTING MAYFLOWER PRIMARY SCHOOL UNDER PERI UPGRADING WITH PROVISION OF INDOOR SPORTS HALL 9ISH) & PERFORMING ARTS STUDIO (PARTS) ON LOT 14821T 14818T 14823K 14825X MK 18 AT 200 ANG MO KIO AVENUE 5

Thank you for seeking our consultation. Attached are the records of consultation made on 25-Oct-2018. Please quote the reference number in correspondence with us.

Yours sincerely

MUHAMMAD IZWAN IBRAHIM
for Commissioner
Singapore Civil Defence Force

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PEOPLE DEVELOPER SINGAPORE

SINGAPORE SERVICE CLASS

HQ SINGAPORE CIVIL DEFENCE FORCE, 91 UBI AVENUE 4, SINGAPORE 408827

TEL : 6848 1413 FAX: 6848 1490 EMAIL: Muhd_Izwan_Ibrahim@scdf.gov.sg

Reference Number: CON/C04882/18

Record Of Consultation

Item 1: AS MOE wants to implement provision of revolving lights for hearing impaired students, the entire school will be provided with the red revolving lights as shown in the photos. Is this acceptable?

Comments: Yes, it is acceptable.

HQ SINGAPORE CIVIL DEFENCE FORCE, 91 UBI AVENUE 4, SINGAPORE 408827

TEL : 6848 1413 FAX: 6848 1490 EMAIL: Muhd_Izwan_Ibrahim@scdf.gov.sg

8.5 List of Applicable Quality System Procedures

Alpha Consulting Engineers Pte Ltd's Quality Management System Procedures

Section	Title	✓ where applicable
M1	Preparation of Consultancy Offer	✓
M2	Project Commissioning and Service Agreement	✓
M3	Design Control	✓
M4	Design Change Control	✓
M5	Tender Process and Evaluation	✓
M6	Authority Submission	✓
M7	Construction Process Control	✓
M8	Testing and Commissioning	✓
S1	Document Control	✓
S2	Documentation of Quality & Environmental Management System Procedure	✓
S3	Documentation of Project Quality Plan	✓
S4	Specification Control	✓
S5	Library Control	✓
S6	Archive Control	✓
S7	Filing Control	✓
S8	Drawing Control	✓
S9	Administration Control	✓
S10	Purchasing Control	
S11	Training Control	
S12	Computer Control	
QE1	Quality & Environmental System Audit	✓
QE2	Feedback Reporting	✓
QE3	Clients Feedback	✓
QE4	Management Review	✓

8.6 List of Software Used For Design/Analysis

DESCRIPTION/ PACKAGE NAME	VERSION	SUPPLIER/ SOURCE	PURPOSE	
Calculux	2.30	Philips	Lighting design	
Cophos	3.31	Zumtobel	Lighting design	
Carrier E20-II	3.21	Carrier	Programme for determination of heat load, duct size and its losses, etc.	✓
Gensize 2	2.1	Onan	Generator sizing	
Lift Traffic	-	Alpha Consulting Engineers Pte Ltd	Lift traffic calculation	✓
Econdial	2.5	Merlin Gerlin	Design for low voltage network	
Hyena	4.00.1	ACADS-BSG	Fire Sprinkler & Hydrant Analysis	
Fault Level Calculation	-	Alpha Consulting Engineers Pte Ltd	Calculation of voltage drop and fault level	

(✓*where applicable*)

SECTION 9

ENVIRONMENTAL CONSIDERATIONS

9.1 Sustainable Design Features/Criteria

Item	Remarks
Green Mark criteria	Certified
Green Design Features	-

9.2 Site PPE Requirement

The necessary Personal Protective Equipment (detailed below) shall be provided by the main contractor/Company in accordance to the site EHS requirements prior to the site monitoring.

PPE	✓ where applicable
Safety Helmet	✓
Safety Shoes	✓
Eye Protection	
Ear Protection	
Safety Harness / Belt	
Others:	

9.3 Site Emergency Preparedness – NOT APPLICABLE

Site staff shall comply with the site emergency preparedness and response procedure, established by the main contractor/owner, which shall include the following details.

Items	✓ where applicable
Evacuation Route	
Emergency Exit	
Assembly Point	
Emergency Contact List / Person	
Alarm system / methods	

SECTION 9

ENVIRONMENTAL CONSIDERATIONS

9.4 Reporting of Environmental Non-conformances

When encountering environmental non-conformances, Site Staff shall be responsible to feedback to the main contractor.

9.5 List of Applicable Environmental management system Procedures

Alpha Consulting Engineers Pte Ltd's Environmental Management System Procedures

Section	Title	✓ where applicable
E1	Aspect/Impact Identification, Risk Assessment & Risk Control	✓
E2	Identifying Legal & Other Requirements	✓
E3	Objectives, Targets & Programmes	✓
E4	Communication	✓
E5	Emergency Preparedness & Response	✓
E6	Monitoring & Measurement	
E7	Control of Air & Noise Pollution	
E8	Management of Wastes	

SECTION 10

CLIENT'S REQUIREMENTS

10.1 List of Output Required by Client:

Item	* Remarks
M&E Design Report	A
M&E Cost Estimate Report	I, A
Pre-Qualification of Tenderers	-
Tender Documents	A
Tender Report	A
Payment Valuation for QS	I
Certificates of Supervision for TOP/CSC	Re

* *Remarks*

A: for approval *C: for comment* *I: for Information* *Re: for record*

Other purposes and for action: please specify.

10.2 Specific Procedures Required By Client *(If applicable)*

NOT APPLICABLE

SECTION 11

LIST OF SUB-JOB

11.1 List of Sub-Job Numbers – NOT APPLICABLE

Sub Job No	Description	Allocation Details